The Iron A

INDEX TO READING MATTER

A Review of the Hardware, Iron and Metal Trades.

INDEX TO

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Double Endless Bed Surfacer.

We show on this page a new double endless bed surfacer just put on the market by the Bentel & Margedant Company, of Hamilton, Ohio, and embracing a number of

valuable features.
In endless bed or chain planers, it must be remembered, the whole bed surface, which in other machines resists the feeding movement, moves on with the material, bringing it under and past the rotating cutter-head. There is nothing in the device to slip, be-

Referring to the engraving, which shows in the front one of these series of slats comprising the traveling bed, it will be noticed that the form and design of the slat is novel, being a slat strengthened by a hollow cored supporting brace starting from the ends and increasing in proportion toward the mid-dle, all cast in one piece. One of the ends of the slat shows it with the plate removed, expos-ing a recessed chamber which ing a recessed chamber which is filled with cotton fabric for carrying a quantity of lubricating oil. The other end of the slat shows this chamber covered by a hard cast-steel plate provided with five holes. The center hole is an oil hole, and the four others are for rivets to fasten the steel plates to the slats. Every slat is "faced" with a hard cast-steel sliding plate which is removable should there be occasion for it. Every slat carries its own permanent slat carries its own permanent supply chamber of lubricating oil, from which the lubricant is uniformly and automatically discharged when needed, and, being hollow, it equalizes the pressure of the air on the two close-fitting surfaces.

The steel plates used are not planed or milled to a uniform thickness, but are of standard sizes and measurements, as found in any steel warehouse, ground to a smooth surface after tempering. The rests for the steel plates are all planed carefully to a uniform hight, so that a renewing can be accom-plished without the assistance plished without the assistance of a machinist. All the various sizes of endless bed planers built by the Bentel & Margedant Company have only two supports for the endless bed, so that an uneven wearing or a rocking motion of the siat or bed cannot take place. The wider planers are supplied with stronger braced slats and broader sliding faces and rails, but all the rails on which the endless bed travels are made in full thickness of the finest tool steel. They are

a wearing finish offering only slight resistance to the sliding pressure of the traveling bed. Endless bed planers of this construction have, we are informed, been in constant hard service for the last few years and service for the last few years, and none of them have required any repairing or renewing on account of abrasion or cut-ting of the sliding surfaces. Three different sizes of this machine are made to plane 26, 28 and 30 inches wide.

The frame of the machine is built very massive and strong, with a broad rest on the The connections and binding braces which hold the two sides together are made especially stro ng and heavy, thus forming an unyielding support for the traveling bed, which remains at a uniform hight for all thicknesses of material. It will be seen that this arrangement of a fixed bed insures freedom from trembling and jar, as the framework of the bed binds the machine firmly together. It also does away with the troublene annoyance of raising and lowering the bed for different thicknesses of material, and with the unavoidable wear of the bed slides and raising screws and with the rocking motion of the bed. It also reduces the work of handling light and heavy lumber, as the receiving and discharging trestles can be maintained at a uniform hight design way with constant reading. hight, doing away with constant readjustent. The upper cylinder with its heavy ousing raises and lowers on inclined dovetailed slides, supported by heavy stands, by means of a crank operating through miter gearing on heavy raising screws. It can be a justed for planing material up to 16 It can

on.

k.

such an angle as to produce a shearing or draw cut, thus preventing any splintering or tearing. It is supplied with a driving pulley of large diameter on each end with momentum disks. The swinging bonnet forms at its lower side a well-arranged chipbreaker, situated very close to the cutting line. It swings very conveniently out of the way for sharpening the knives and other purposes. Two heavy-weighted idler rollers are connected with the cylinder housing, the supplied with a driving in the rear of the lower cylinder. They are distance of only I foot from that point, or, in other words, if the power at I foot from the spot be represented by I,000, or at the distance of 100 feet it will be but I. It is thus seen that the effects are intensely local, and but comparatively trifling at even short distance.

Impregnated vs. Natural Samples of the content in the cutter-words are connected with the cylinder housing. the way for sharpening the knives and other purposes. Two heavy-weighted idler rollers are connected with the cylinder housing, one in front and the other in the rear of the

ter head, raises and lowers with the cutter-head and back table. Operators will see cylinder. The pressure on these rollers can be regulated to suit the requirements of the time and labor are thus saved in establishings" of the British Institution of Civil material, as their office is merely to hold the material in close contact with the traveling important parts, which have a fixed relative teresting experiments made in Germany a

Wood.

There is nothing in the device to slip, because the very rest or support of the lumber moves along. It is all "go." Notwithstanding the advantages of the chain-feed, however, it has not found its way into all shops where lumber is planed, because in many planers of this class the traveling of this class the traveling slides very soon wear out of line, and require expensive repairing.

It is interesting, therefore, to note the manner in which this complaint has been oversome in the machine which we illustrate. Referring to the engraving,

There is nothing in the device to slip, because to suit the requirements of the importance of this combination, as much time and labor are thus saved in establishmater of these three time and labor are thus saved in establishmaterial, as their office is merely to hold the superstructure or midship battery, and the gune as series of inguity and the superstructure or midship battery, and the superstructure or midship battery, and the superstructure or midship battery, and the gune as fixed relative adjustment, defined as series of inguity and the gune as series of inguity and the gune and rosults of a series of inguity and the gune as series of i

The British War-Ship Benbow.

The British man-of-war Benbow, recently completed and now receiving her armament, is one of the six vessels of the Admiral class, so called from bearing the names of six famous admirals—Anson, Collingwood, Camperdown, Howe, Rodney and Benbow. They Impregnated vs. Natural Samples of mounted inside a fixed circular breastwork of thick armor-plating, wherein the gun revolves on a turntable, and fires over the breastwork. The barbettes are placed

of 63 tons only instead of 110 tons. These terrible en-gines of warfare would be most destructive in action, and are, in fact, formidable weapons, but in some quarters such enormously large guns are not viewed with much favor. England, in the matter of adoption of such heavy guns, has been following in the wake

of Italy.
In addition to the two 110to guns, the Benbow carries a battery of 10 6-inch guns, 12 rapid-firing guns and 14 machine guns, these latter very conveniently arranged for use against torpedo-boats. She is also fitted with four torpedo ports on the broadelde and one through the broadside and one through the upper part of the stern, all above water. The Benbow was launched on June 15, 1885, and has since that date been and has since that date been lying near the works for the purpose of receiving her ma-chinery and boilers, and for the completion of the multitudinous It would be impossible to de-scribe on paper the character of such fittings, including the pumping, draining and ventilatpumping, draining and ventua-ing some 180 separate compart-ments, each compartment being fitted with an automatic valve, where the ventilating pipe or trunk passes through, so that in the event of the water enin the event of the water entering any one compartment, and rising to the hight of the trunk—the trunk being assumed to be possibly damaged—the water would close the valve, and so be confined to the damaged compartment. Some idea of the complication of the gearing in a modern war vessel as fitted in England may be obtained when we state that no less than 83 water-tight doors and armor deck shutters are fittled in this vessel, in addition to 85 watervessel, in addition to 85 water-tight doors that open and close by hand without gear. The deck plates, to which indicators are fitted, showing when each door or valve is open or closed,

kept in proper going order.

The dimensions of the Benbow are as follows: Length, 330 feet; breadth, 68½ feet, and depth, 37 feet. The engines, supplied by the well-known firm, Messrs. Maudslay, Son & Field, are of the three cylinder compound type, of 7500 indicated horse-power, and reaching 9000 with forced draft, withing a stimuted speed of 16 known. The giving an estimated speed of 16 knots. The Benbow, like other ships of this class, is of the citadel type; this means that the vital portion of the vessel for about half of her length is protected by being included in an iron box armored with 18-inch plates on the side, the top of which at full draft is 2½ feet above and 5 feet below water, giving a total depth of 71/2 feet. The athwart-ship bulkheads forming the two ends of the citadel are 16 inches thick; before and abaft these

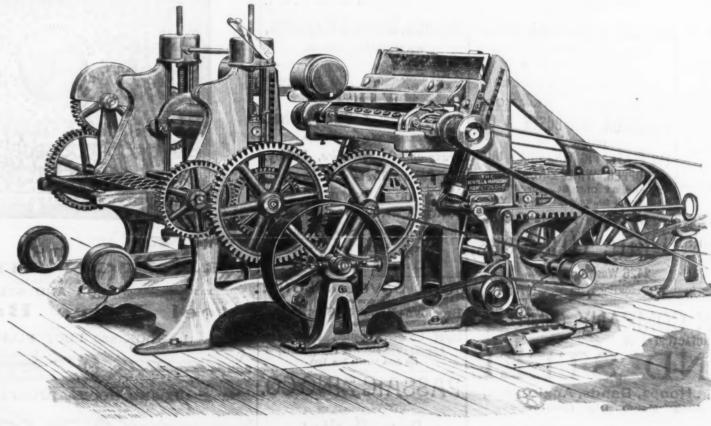


Fig. 1.—General View,



Fig. 2.—Triangular Cutter Cylinder.



Fig 3 .- Differential Sectional Feed Roller.

DOUBLE ENDLESS BED SURFACER, BUILT BY THE BENTEL & MARGEDANT COMPANY, HAMILTON, OHIO,

cutter-head is employed, is located at the back end of the traveling bed, and is especially arranged for quick adjustment. It rests in a srong combined housing which retains the long self-oiling journal-bearings in accurate line. It raises and lowers upon long vertical slides provided with adjusting gibs, by means of a crank wrench operat ing through worm gearing on two vertical insuring simultaneous action and justment. There are two adjustable screws. easy adjustment. There are two adjustable tables, one in front and the other in the rear of the lower cutter head. The one in front can be adjusted in line with the traveling bed. It is supplied with handles by which the whole table can be swung back out of the way, giving free access to the head. As already remarked, the housing of the lower cylinder raises and lowers by a worm and screw device for any required hight above the first table, and inependently of it for any thickness of ut. This adjustment can be accom-lished while the cutter-head is in a operation. The table back of the cutterin operation. head raises and lowers with the housing, so that it always remains in line with the cutting line of the cylinder. This table can, however, be adjusted for hight if necessary, and can also be lifted entirely cut of its bearings without the loosening of bolts or nuts. A resisting pressure-plate of large dimensions operated by concined vertical screws and handles (when no feed rollers are supplied) holds the material firmly down when operated upon by the lower head. When feed rollers are provided the pressurebe a justed for planing material up to 16 when feed rollers are provided the pressure inches in thickness. When feed rollers, as shown in the engraving and are of the impregnated samples was greater by about 22 per cent. than that of the natural string and are of the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. than that of the natural samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on surrounding objects is in the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on the impregnated samples was greater by about 22 per cent. The power exerted by an explosion on the impregnated samples was greater by about 22 per cent. The power exert

are made in full thickness of
the finest tool steel. They are
carefully ground by special machinery on
the top and bottom to a perfectly true and
straight line. Thus arranged they will not
cut or wear irregularly, but will soon assume
cut or wear irregularly as a soon in the cut. This
arrangement is of ended shown in the cut. This
dung on impregnated samples. 2. The effect of acids, urine and liquid horsedung on impregnated samples. 2. The effect of acids, urine and liquid horsedung on impregnated samples. 2. The effec the 26-inch machine is 5800 pounds.

Important Electrical Decision .- An nportant decision has just been rendered in the Chancery Division of the High Court of Justice, London, before Mr. Justice North, in the suit of Abraham Van Winkle, of Newark, N. J., U. S. A., vs. William Alexander Carlyle, of Birmingham, England. This was a suit for infringement of dynamo electric machines for electro-plating, owned by the said Van Winkle, of the firm of Han-son, Van Winkle & Co., Newark, N. J., and has been some time pending in the English courts. An interim decree for injunction having already been granted, it has now been made absolute, the defendant being restrained during the continuance of the letters patent or any extension thereof from making or selling an magneto-electric ma-chines under or in accordance with or in violation of the letters patent on which the suit was brought. The plaintiff's solicitor in this suit was Mr. Frederick Marshall solicitor to the American consul, Birmingham, the attorneys Messrs. Thomas White & Sons, London and Mr. Theodore Aston, Queen's counsel, the eminent patent solicitor being retained. The firm of Han-Van Winkle & Co., were the first introducers of dynamo electric machines in this country, and the above decision is likely to have considerable influence on the sale of

The weight of and natural samples. 4. Expansion in consequence of absorption. 5. Resistance to kept in proper going order. sequence of absorption. 5. Resistance to bending of impregnated and natural samples. 6. Resistance to compression of impregnated and natural samples. The acids used were hydrochloric, sulphuric, nitric and phosphoric, all with a strength of to per cent. The impregnated samples, after subjection for 14 days to the various substances named, were found, on careful examination with a microscope, to be unaffected by them. be unaffected influences were artificially Atmospheric produced. The samples were, a, slowly heated in water to boiling point, kept for some time at this temperature, and then suddenly cooled by plunging into cold water; b boiled half an hour in a 15 per cent. solution of salt and frequently cooled suddenly during this time; c boiled half an hour in a 5 per cent. potash solution;
d boiled half an hour in the same solution, half an hour in a 5 per cont.

d boiled half an hour in the same solution, with an addition of 1 per cent. sulphide of ammonia; s boiled half an hour in a solution equtaining 2 per cent. sulphate of iron, 2 per cent. sulphate of copper, and 10 per cent. of common sait. The samples were the superstructure would suffer severely. In the case of other types of war vessels protection is afforded by a belt of armor plating thickest amidships Impregnated samples of wood absorbed much less water than those in a natural condition.

The increase in volume in consequence of the absorption of water was less in the impregnated than in the natural samples. The tests on the bending strength of the samples showed that those impregnated were than the attraction is and displacement of the Benbow has been done, for in order to provide for the armor deck and additional freeboard of the Nile and Trafalear, the displacement their new machines both here and abroad, stronger by about 15 per cent than the the Nile and Trafalgar the displacement as this is considered a test sait.

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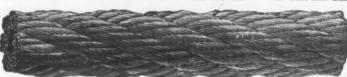
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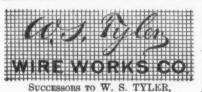


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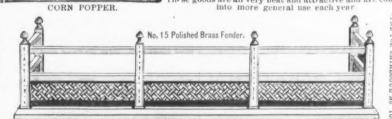
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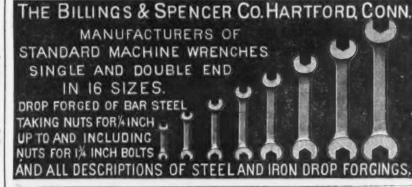
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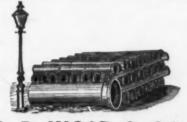
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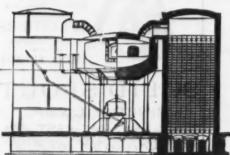
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E BRICK, COAL and COKE, MUCK BARS. Handle
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negotiate sales of Iron and Coal properties. In the years 1884 and 1885 two Swedish engineers, J. N. Danielsson and B. Wij-kander, made a series of extensive trips kander, made a series of extensive trips through the metallurgical centers of Austria, Germany, Belgium, France, Great Britain and the United States, and they are now publishing in the Jernkontorets Annaler a series of articles embodying the results of their observations. One of them deals with the Austrian works generating which little their observations. One of them deals with the Austrian works, concerning which little is known in the United States. At Witkowitz there is a plant in which both an acid and a basic Bessemer works is carried on, both of them being supplied by the same blowing engine, the charges being so arranged that blowing is carried on alternately in the acid and in the basic vessels, three-quarters of an hour elapsing between each blow. For changing bottoms 10 minutes is required, and for replacing converters 30 minutes. Both the body of the vessel and the bottom is lined with basic brick and tar, the method being to dip that part of the brick which is to be added to the work IRON COMMISSION MERCHANTS, Selling Agents PINE IRON WORKS, Pine Brand lates; GLASGOW IRON CO., Plates and Muck Bars; PRANG STEEL & IRON CO. (Limited), Siemens-tartin (Open-Hearth) Steel, Universal and Sheared Plates, Angles and Shapes. brick which is to be added to the work already laid in each tier, and then distribualready laid in each tier, and then distributing fine depulverized refractory material upon it and stamping it into the cracks, and finally giving ita coat of tar It is stated that these refractory basic brick are low in magnesia, having the following composition: 2½ per cent. silicon, 6.9 per cent. oxide of iron, a trace of alumina, 82.75 per cent. of lime and 5.57 per cent. of magnesia. The raw material is ground as fine as possible, and the brick are very sharply burnt, shrinking 45 per cent. The bottoms have four tuyeres each, with five Andover Pig Iron Andover Chill Iron for Carwheels, &c bottoms have four tuyeres each, with five holes 0.4 inch in diameter. All the tuyeres are placed near the center of the bottom. F. A. COMLY, Treas. WESLEY PULLMAN, Agent. 240 So. 3d St., Phila. One converter lining will stand 45 to 60 blows and the bottom 18 to 20. The drying and warming of freshly-lined vessels is car-ried out with the aid of gas from a producer charged with one-third bituminous coal and two-thirds coke. The more rapid the blow Philadelphia Testing Laboratory, is in the basic converter the hotter it is. Up to the period of dephosphorizing, the blowing lasts from 6 to 18 minutes, the average ranging between 8 and 14 minutes. Dephosphorizing begins as soon as the carbon contents of the bath have been brought down to 0.10 or 0.05 per cent., and the afterblow lasts about one-half of the time required to bring it to that point. The phosphorus contents of the metal are judged by a small round sample which is hammered out under a steam hammer, and is hardened and bent until fractured. If the sample shows too much phosphorus the converter is turned up and blowing is continued. The fracture of the sample must not show bright streaks, since the latter indicate too high a phosphorizing begins as soon as the carbon consince the latter indicate too high a phosphorus contents. The following are the results of the Witkowitz basic plant for five months, the metal being used for rails, plates and tires :

Pig iron charged into reverberatory fur-. 17,133.9 Idmestore: Coal for steam. Coal for melting pig and spiegel. Coal and coke for gas producers. Limestone for siagging in gas producers.

176.8 95.6 366.0 99.84

The requirements of refractory material per 1000 kg. are 103 kg. for the basic process and 32 kg. for the acid process. Every second charge is taken direct from the blast furnaces, alternate blows being made from the reverberatory furnaces used for melting. The charges range between 5 and 6 tons, and no scrap is added during the blowing, because the blows are of themselves so cold that often ladle skulls are formed. The final addition is about 20 kg. of spiegoleisen. As an average for six successive blows the pig iron used contained 0.50 silicon, 3.55 pig fron used contained 0.50 stitcon, 3.55 phosphorus, 0.09 sulphur, 0.18 copper, 2.42 manganese. The metal obtained in six charges previous to the addition of spiegel carried 0.08 carbon, a trace of silicon, 0.06 phosphorus, 0.015 sulphur, 0.22 copper and 0.25 manganese. After the addition of spiegel it ran: 0.20 carbon, a trace of silicon, 0.045 phosphorus, 0.02 sulphur, 0.21 copper and 0.37 manganese. The cinder which re-sulted during these seven blows was composed as follows;

Before addition of spiegel. of spiegel. 18.98 18.98 7.60 Phosphoric acid....

In Teplitz there are three basic converters, against two at Witkowitz. In both instances the pig iron is obtained in reverberatory furnaces, because the melted iron is hotter than it would be obtained from a cupola. This makes it possible to employ a raw material lower in silicon, which is a considera-ble advantage in dephosphorizing. It is ble advantage in dephosphorizing. It is stated that at Teplitz the iron averages 2.2 per cent. of phosphorus, only 0 1 to 0.15 of silicon, ½ of 1 per cent. of manganese and of sulphur. Besides the exceptionally low percentage of silicon, the manganese, too, is small, which makes the excellent results as of a requality is concerned, all the sults, so far as quality is concerned, all the more notable. Formerly only pig iron from Peine, in Northern Germany, was used, since

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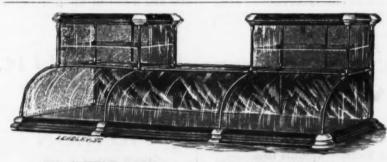


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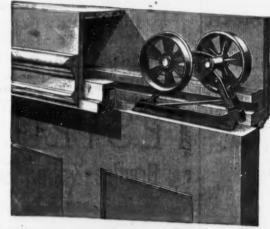
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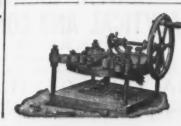
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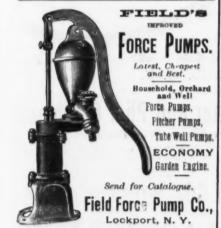
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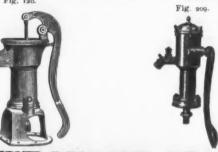
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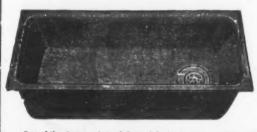
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in a single heat. At the time the engineers in question were at the works these arrangements had not yet been patented and were not shown to visitors. The mechanical arrangements for casting at Teplitz are the ordinary ones with a central hydraulic crane between the converters. At Witkowitz the ladle is carried by an engine to the casting pit, located at some distance from the conpit, located at some distance from the converters. At the latter works basic steel is said to cost 80 kreutzers per 100 kg. more than acid metal. The Teplitz basic plant is better managed than the majority of the others. This is necessitated by the competition of the charcoal iron of the Alpine district. The carbon must for that reason be kept very uniform, so that in the final product it must certainly be within a range of o.03, o.02, o.02, o.02, o.03, o 02, o 02, o.01, o.02, o.02, o.02, o.02, o.02, o.02, o.03, o.04, o.04, o 03, o.03, o.02, o.02, o.02, o.02, o.02, o.02, o.03, the carbon varying from o.06 to o.09 and the manganese from o.24 to o.28. The strong oxidation of the bath, which must always take place in the basic process, calls necessarily for a large addition of manganese, and as a result thereof the manganese contents found in the final product cannot very well be kept down low; even the softest Thomas steel rarely has less than o.25 per cent. of manganese, and very often its contents are about o.3. and very often its contents are about 0.3. So far as the much-contested elimination of sulphur is concerned, there can be no doubt that it is sufficiently attained in Teplitz. that it is sufficiently attained in Teplitz. For many months pig iron carrying as much as 0.15 sulphur has been blown to make a product of 0.04, and even sometimes less, of sulphur. Thus the desulphurization is affected by continuing the afterblow after dephosphorization. It is true that in this manner the waste is increased and the quantity of manganese to be added grows larger, and that to some extent the quality of the product may possibly be endangered. Special attention must be given to the point cial attention must be given to the point that this afterblow must not continue too long on steel almost free from foreign sub-stances, and it is stated that a small percentage of sulphur has a tendency to in-crease the amount of gases absorbed by the metal. Although, therefore, desulphurization in the converter seems possible, it is more easily carried out in the blast furnaces, and should be done there. Neither at Teplitz nor at any other basic works is molten steel quiet. This in some cases must be regarded as a drawback, although some of the Sheffield manufacturers fear a dead steel, and a cold rising metal is better for some purposes than hot dead steel. A sample of the steel made in Teplitz analyzed in Sweden yielded

the following results: Sulphur..... 0.04 Manganese.... 0.25 Phosphorus

A specimen of best quality Swedish open-hearth metal sent to Teplitz for comparison showed 0.108 carbon, 0.016 silicon, 0.032 phosphorus and 0.1 manganese. Teplitz plate ingots contained :

Per cent. ... 0.060 | Phosphorus... 0.012 | Manganese... Carbon Another steel for beams carried Percent. ... 0.068 | Phosphorus... ... 0.014 | Manganese...

As a general rule the open hearth process is kept more secret and difficulties are encountered in any efforts to state any length of time or to obtain correct data concerning it. It is true that in many localities the process has not been introduced for a long time, and it is possible that only little that is definite is available. It is a fact, however, that at the present time the openever, that at the present time the open-hearth process is gaining ground more rapidly than any other. The use of ore toward the end of the process is becoming general in Great Britain, and it must be admitted that with it a good product is obtained, and that it offers a substitute in the absence of good sorap or high price for it. However, the addition of ore does not at the transport of the transport of the trees, net cash:

| Mottled | 1/2 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/3 | 1/ it. However, the addition of ore does not yield so good a metal as if obtained by the yield so good a metal as if obtained by the exclusive use of pure pig or scrap. Whereever it is used the addition of a little ore toward the close of the process is regarded as a means to render more easy the mixture of large charges, because it causes an ebullition of the bath at a time when the carbon contents begin to be small. Some works which make a speciality of exceptionally good quality take extreme care to avoid such an addition of ore. The Swedish engineers did not see the advantage of its use, because whatever is gained by rapid decar such an addition of ore. The Swedish engineers did not see the advantage of its use, because whatever is gained by rapid decarbonizing of the bath is lost by the necessity for making both hot and fluid, and by the damage to the furnace growing out of the use of ore. If instead of using ore, preheated scrap is employed, the charge works more rapidly, the quality of the work becomes better, and there is a saving in rapairs. At Witkowitz there is a 10-ton furnace, open-hearth, producing annually about 3000 tons of ingots and making 120 to 150 charges without any notable repairs. The charge contains about 15 per cent. Of the two producers belonging to that furnace only one is used. It is charged with two-thirds coke and one-third coal, and some lime is added to slag the ash. The consumption of fuel is 45 to 50 per cent. of the product. The producer gases are not passed.

it is the best adapted in the world for the Thomas process. Now only Bohemian iron is employed, but, as the ores used in Bohemian furnaces are very low in manganese, Bessemer slag from the Alpine district is added to the furnace charge in order to get over this drawback. In Teplitz from 20 to 44.8-ton blows are made in 24 hours. The blowing lasts 15 to 16 minutes, the afterblow being regulated by a given number of revolutions of the blowing engines, for which purpose a counter is provided on the pulpit. At both works it is usual to cast from above. It is stated that arrangements have been made to cast small ingots at Teplitz, which will make it possible to roll merchant sizes in a single heat. At the time the engineers in question were at the works these arrange-time the regenerator, since they enter the furnace with a temperature of about 600° F. Latterly water gas has been employed in running the Witkowitz open hearth steel plant, and it is stated with the best of results. At Donawitz there are two open-hearth furnaces, the larger of which makes 60 to 70 tons and the smaller 50 tons per week. The product for the year 1883 was 4953 tons and in 1884 was 4028 tons of inguts and 1011 tons of rails, tiers and miscellaneous castings. The consumption of fuel, which is lignite, is 66.63 per cent., to which is lignite, is 66.63 per cent. to which stand from 120 to 200 charges, producing chiefly soft stock, though rarely going lower the Alphane the very 500 ingots the back. than 0.17 carbon. For every 500 ingots the charge is 25.82 per cent. of pig iron, 0.57 per cent. of ferromanganese and 81.27 per cent. of scrap and muck bar. The crew for the furnace is, per shift, one melter, three helpers, one boy and three men at the producers for two shifts.

English Letter.

(From Our Regular Correspondent.) London, September 27, 1886. THE WEEK

o 05 to 0.09. It is natural that in high grade of product great care must be given to the uniformity in the composition of the pig employed. So far as dephosphorizing is concerned, the following series of 20 successive blows made at Teplitz was analyzed for phosphorus in the laboratory of a neighboring works, with the result: 0.03, a neighboring works, with the result: 0. has not been a very eventful one, but so far mit any other power to assume the function of settling things to its own liking. In this way it is hoped that the threatened war may be avoided or rather postponed until after the decease of the Emperor William of Germany, whose demise, whenever it takes place, will almost certainly be the signal for recogning the action. Fastern conting prace, with almost certainly be the signal for reopening the entire Eastern question. Meantime the evil day is postponed and commerce is temporarily freed from the weight which has pressed so heavily upon it during the past few weeks.

So far as our iron market is concerned I give you the leading features elsewhere, but may add that there is an impression in many quarters that the final quarter of the year is not unlikely to afford some compen-sation for its predecessor's falling off. There is much better news from Australia and other parts of the world, owing to the en-hanced values of wool and other raw prodhanced values of wool and other raw produce, which rise will enable the countries affected to return us good for the good we do them. The reported gold discoveries in South Africa, Tasmania and Western Australia are also hailed as being good omens, inasmuch as any considerable increase in the supply of the precious metal would undoubtedly have the effect of promptly (and probably permanently) augmenting the values of all commodities. With such an augmentation there would probably come a very marked increase in the demand from all parts of the world. all parts of the world.

SCOTCH PIG IRON

is a little steadier on the whole, and has improved in value to a slight extent during the past week under influences which have the past week under influences which have been partly legitimate and partly specula-tive. There are now only 77 furnaces in operation (50 on ordinary Scotch pig), as against 90 a year ago, so that the make is appreciably less. Notwithstanding that fact 3529 tons were added to Connal's stock last year, making the total there 822.156 tons, as compared with 624.874 tons this date last year, or an increase of nearly 200,000 tons in the 12 months. The shipments are 41,903 tons behind to date, while the imports of Middleboro' pig iron into Scotland are 37,263 tons in arrears. Current prices are

Deliverabl	e alon	rside.		No. 1.	No. 9.
lartsherrie, a	t Glas	gow	 	44/	41/8
Coltness,	0.0		 	48/	42/9
angloan.	0.6		 	43/6	41/8
lummer'ee,	60		 	45/	41/3
Calder	0.6		 	45/8	41/8
larnbroe,	46			41/6	89/
llyde.	6.6			42/6	89/
fonkland	0.6			43/	36,6
lovan, at Bros	omiela	w	 	41/6	36/6
shotts, at Leit	h			43/6	48/
Carron at Gra	ngem	outh		46/6	43/6
Hengarnock,	at Ard	GARBO?	 	48/	40/
Eglinton,		0.0		40/	36.6
Dalmellington		0.0		40/6	88/

MIDDLESBORO' PIG IRON

seems to be a little steadier now that the re-

		Foundry		 82/	ı	White 28/6
50	3	0.0		30/6	1	Refined metal 46/
6.0				30/	i	Kentledge 38/
5.5	4	Forge		29/6	1	Cinder 27/6

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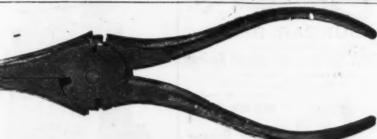
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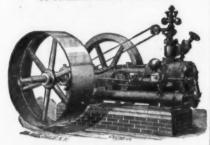
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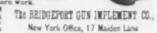
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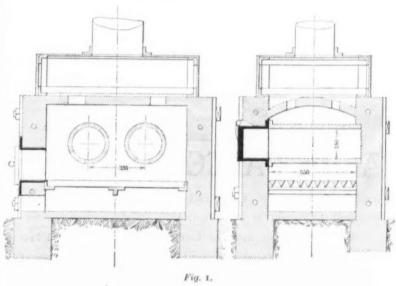
Some of the works are receiving larger specifications, but for the most part the work ifications, but for the most part the work in hand will not keep the places going at full time, or for many weeks ahead. In Cleveland bars are quoted at from £4. 7/6 to £4. 10/; angles, £4. 2/6; ship plates, £4. 5/, less 2½ £; puddled bars, £2.17/6, net. In Staffordshire ruling rates are for marked bars £7 for best qualities, and £6 for second brands; good ordinary bars, £5. 10/; common, £5 down to £4. 10/; angles and T's are about £5 @ £5. 5/. In old scrap no appreciable change has transpired. Supplies remain rather scarce. Freights for pig iron from Glasgow to New York by orpig iron from Glasgow to New York by or-dinary steamer remain steady at late rates, viz., about 5/ 13 ton. To Australia the situation remains unaltered, although some movement on the part of the "ring" to meet the 5/rate of Tyser & Co. for Sidney is almost daily expected. Steel continues in fairly good demand, and nearly all the makers report themselves as well booked forward. Sleepers remain quiet, but makers assert that new contracts will have to be based upon a higher rate than has been previously ac-cepted. Bridgework continues quiet, and no important orders have been given out for some time past, nor is there at the moment a prospect of anything extensive to be given

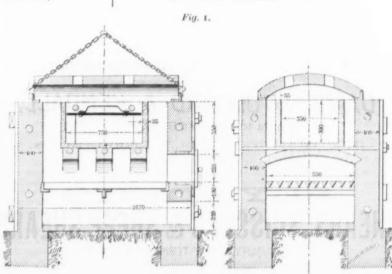
Staffordshire the encouraging conditions are lower quotations makers are not now dis not so marked, and quotations lack firmness. posed to accept orders under 12/9 for ordinary cokes. The works are reported to be dinary cokes. The works are reported to be fairly well off for work as a whole. I quote IC cokes 12/9 @ 13/, f.o.b Liverpool. At Liverpool the state of the tin-plate trade is Liverpool the state of the tin-plate trade is unsatisfactory. Bessemer steel cokes and ordinary kinds of coke tin plates are still obtainable at 12/6 @ 12/9 IC in rather large quantities, much larger than is desirable when higher prices are so eagerly looked for. There is but little doing in stamping plates of Siemens steel quality and coke grades, and the few orders that come forward are at very low limits, some being as low as 13/6 IC. The same may be said about charcoal tin plates. There is a pretty regular demand for coke tin wasters in orregular demand for coke tin wasters in ordinary sizes at prices varying from 11/9 to 12/3. There is also a good demand for terne wasters just now. Quotations of all-steel and coke grades are 3d. more.

Herzog's Hardening Furnace.

Herr Paul Herzog, of Peterswaldau, Germany, has introduced hardening fur-naces and methods of hardening wrought iron, cast iron and steel, which the Maschinen Construkteur describes as follows: Figs. 1 and 2 show a hardening furnace

out. American inquiries for blooms and billets the masonry of which is built up of hard are still before the market, but, as prices have brick and good loam mortar. The box for stiffened, business has not been extensive. I the reception of the articles to be hardened





HERZOG'S HARDENING FURNACE.

Steel rails are a little dull this week, no inquiry calling for remark being before the arches also made of tile. The furnace is market. The Japanese Government have now determined upon the construcion of a lue from Tokio to Saikio, a distance of about the draft is done by lifting or depressing the construction. the 250 miles at present contemplated.

THE HARDWARE TRADES.

that in the fall trade with the United States there will be a marked increase of orders. The objects are cooled, however, in water containing ½ of 1 per cent. by volume of hydrochloric acid. For articles made of cast iron the charging is the same, but the are also hopeful indications from the color articles are first covered with a dough con-

though buyers generally are holding out for be very satisfactory.

o miles. This line has been under the arch. As soon as the tile box is filled with ensideration of the Government for some the articles to be hardened it is covered with time, but it was a question as to the route it should take. This matter having now been disposed of, it is believed that the line will draft-holes in the arch, and into these it is be undertaken at a very early date, and also possible to introduce iron rods which are that eventually it will be extended beyond employed to test the heat of the interior of the hardening box Figs. 3 and 4 show a furnace in which fire-brick retorts are suburnace in which fire brick retorts are substituted for the box in the previous furnace, and this design is particularly used for cation of the nearness of winter, has led them to show a little more activity in the way of purchasing winter requisites both for domestic and horticultural purnames. In way of purchasing winter requisites both for domestic and horticultural purposes. In Birmingham the improvement of business reported in some of the season trades is not covered with about \(\frac{1}{2} \) inch of either sufficiently marked yet to justify much jubilation. Australia seems to be waking up at last to her needs and opportunities, and the mail this week has brought some highly satisfactory indents for various classes of hardware. Spain is also asteadily improving market, and, though here and there travelers express disappointment, the orders received since the new tariff arrangement must be reported satisfactory. With Canada and the United States we are still doing a good trade, but the time is drawing near when shipments for the Canadian and North of Europe markets must cease. Business is better in the wroughtnail trade, and there is more doing in chains. In Sheffield the general toudency of trade is burnt bits of limestone, followed by the first less favorable than last week, and in hardly layer of the hardening material, leather, any branch is the promised revival yet apparent. Confidence is, however, expressed the furnace is heated in the same manner. are also noperal indications from the colorates. The heavy works where war material is made continue to be well employed, but in these cases the circumstances are exceptional. The steel trade generally outside the demand for armor plates and ordnance appears to be less actively engaged.

The steel trade generally outside the during which the furnace must be heated is extended to no hours and the temperature is expected to the steel trade generally outside the during which the furnace must be heated in the steel trade generally except to the furnace must be heated in the In London this market is certainly obtained by these methods in hardening stronger than it was a week ago, and all wrought iron, steel and cast iron are said to

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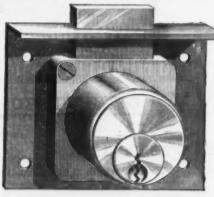
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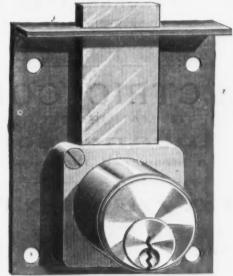


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High and Low Locomotives

In an article on the relative merits of and low locomotives the Engineer (London) says :

If the question were asked, "Given two vehicles, both having wheels the same distance apart laterally, but the hight of the tance apart laterally, but the hight of the center of gravity of one greater than that of the other—which would be most likely to overturn in use?" the answer would be in most cases the vehicle with the narrower base in proportion to the hight of its center of gravity. The adage that "circumstances alter cases" applies here, however, with more force than many persons are aware of. The locomotive engine supplies an ex-The locomotive engine supplies an ex ample of this. For many years engineers held the opinion that the lower the center of gravity of a locomotive could be kept the steadier it would run; and the relative merits of engines with outside cylinders in this respect, as compared with those having inside cylinders, formed subject for debate. The inside cylinder engine necessitates a higher placed boiler than does an outside cylinder arrangement, because of leaving clearance for the big ends of the connecting rods, and room generally for the parts of the motion, and to give access to them. On the other hand, as an offset against the greater hight could be put the action of the steam in the cylinders. W. H. McMILLAN,

It is well known that the alternate pressure of the steam on the ends of the cylinders tend naturally to rotate the entire engine horizontally round a center or a turning point situate in the longitudinal middle line of the engine, the force being measurable by the total pressure on the lid or bottom of the cylinder, multiplied by the distance of the center of the cylinder from the turning point. The distance is a from the turning point. The distance is a fixed measurement in any given engine, but the loads or stresses are constantly altering both in direction and magnitude. Thus, when both pistons are moving for ward, each crank being at an angle of 45° with the horizon, the turning stress about the central point is equal to the difference between the steam pressures in the respective cylinders, which difference will depend upon the grade of expansion in use at the time. When, however, one piston is coming back toward the fire-box, while the other is still going forward, the cranks being again at an angle of 45°, the strain or steam pressures both act to turn the engine in the pressures both act to turn the engine in the same direction; therefore the stress at the turning point will equal the sum of the stresses for each cylinder. A little reflec-tion will show that, inasmuch as the centers of outside cylinders are considerably fur-ther from the engine center than are those ther from the engine center than are those of inside cylinders, the stresses on the cylinder ends act with proportionately greater leverage, and therefore with enhanced stress. The vibratory or "boxing" movement of small outside cylinder tank engines when running fast is very perceptible. The advocates of outside cylinders, however, claimed that this action, so far as

ever, claimed that this action, so far as danger of derailment was concerned, was, as we have observed above, compensated for by the lower center of gravity obtained. In the earlier days of railways locomotive engineers did not discern apparently so clearly as is now done the difference between strains causing an engine to overturn and those tending to make it leave the rails. The risk of an engine overturning while running is very slight, even when going round sharp curves. Indeed, we cannot call to mind any instance of an engine overturning when running while still on the rails and nothing broken. The danger of derailment, so far as the engine action is concerned, is to be found in horizontal lateral strains, such as hammer or grind the flanges against the rails, tanding of necessity to break flanges, wheels, axles or rails; and here we may incidentally comment on the dearth of information extant about broken rails, as to the nature of the various examples of fracture. Did a rail break vertically or horizontally? The risk of an engine overturning while Did a rail break vertically or horizontally? Did it snap like sealing wax, without any previous permanent set bending? Informa-tion on the behavior of rails in this way

would be both interesting and instructive.
It is gradually becoming admitted by locomotive superintendents that high engines run easier and with less jar and shock than low engines, and we venture to say that there are at this moment locomotive super-intendents who, if they had to build their last set of engines over again, would set their boilers higher. The reason why the high engine is the steadier is this—the gauge rails represents the ba ie of a triangle and the center of gravity of the engine rep-resents its apex. Now, if a side strain be caused to act on the apex of the triangle, it caused to act on the apex of the triangle; it can be resolved into two other forces on the triangle if we regard it for the moment as a truss or as a solid body. One of these forces will create a rotating strain, resembling in effect the action on a crank, if we regard the lower corner of the triangle furthest from the pushing strain as the shaft, and the apex or point where the strain is applied as the crank pin, The lower corner of the triangle is the turning point of the strain, the purely rotary force being equal to the amount of the applied strain multiplied by the sine of the angle at the turning point. But, as we have pointed out, there is a lateral strain also, tending to simply push the tri angular body sideways; and the magnitude of this stress will be equal to that of the applied force multiplied by the sine of half the top angle of the triangle or half its base. From this it will be obvious that the greater the lower angle and its natural sine, as com-pared with half the apex angle and its natural sine, the greater will be the over-setting or rotating force, and the less will be the lateral strain on the rail.

The high engine complies better with these conditions than the low. Consequently, the bursting action on the rails is proportionately reduced, while the margin of safety against the high engine oversetting is so great as to render the risk of danger ary, erecting windmills, &c.

For example, a body cannot overturn until its center of gravity overhangs its base.

Before this could take place with an engine of 4 feet 8½ inches gauge, and whose center of gravity is 6 feet from the rails, the engine must be inclined to an angle exceeding 22°. Besides this, other elements of safety attend the high engine. For example,

as it strikes the outer rail of a curve with ess force than does the low engine, there is less force than does the low engine, there is less tripping action operating to cause an upset. The high engine, just as with the old high, narrow mail coaches, having their piles of luggage on the roof, and generally high center of gravity, has a long, gentle, easy swing, coming slowly into motion and slowly coming to rest again, without those jars and shocks strongly perceptible with low engines. Then as regards ease of traction or propulsion, as well as the diminished risks of broken axles, whoels and rails, and the reduced vibration influences on all parts of the engine, and their attendant evils in shaking nuts and joints loose, and causing crystallization, everything is in favor of the high engine. There may be men still alive who prefer the low engine, but we venture to think that they do so more from early impressions than from any specific reason, and that when they really study the matter carefully they will change their

It must not be forgotten that our reasoning is based on the fact that the locomotive is carried on springs. The effect of the high center of gravity is to produce an augmented stress on the outer springs and a diminished stress on the inner springs, and the higher the center of gravity the greater will this downward thrust be. If it was possible for the center of gravity to be at the same level as the rails, then the effect of the engine in passing round a curve would be wholly lateral to vertical component being the content of the same level. lateral, no vertical component being exist-ent; and the elastic action of the springs would be eliminated. The high engine runs more easily than the low, because it makes better use of the elasticity of the springs on which it is carried.

TRADE PUBLICATIONS.

Machinists' and Engineers' Supplies.

The New York Supply Company, of 50 and 52 John street, New York, have issued two small catalogues. One of them is devoted to what are known as the Scientific portable forges, and shows 12 different styles of forges and blowers, and also sev-eral forms of drill presses and a combination vise and anvil. The other pamphlet is devoted to a brief description of the Hancock inspirator, and contains in addition engravings and particulars of asbestos packed cocks, straightway stop and check valves, steam traps, hydrostatic levels, &c. Both catalogues contain price lists and tables of dimensions, and will no doubt prove of interest to the trade.

Anti-Friction Metals.

E. A. C. Du Plaine, of Chicago, Ill, has issued a circular setting forth the advan-tages of his anti-friction and Babbitt metals. Machinery users and others interested in the reduction of frictional resistances in machinery will find it to contain a number of interesting particulars, and should give it attention.

Machine Tools

A new catalogue issued by the Gaylord, Cross & Speirs Company, of Waterbury, Conn., refers in an interesting manner to their various forms of machine tools, embracing power and foot presses, drop presses, turret lathes, upright drills, wire straighteners and other specialties. The catalogue embraces 28 pages, and deserves careful attention.

Engines and Boilers.

The Skinner Engine Company, of Erie, Pa., have issued a new catalogue illustrat-ing and describing a large variety of en-gines and boilers, and also steam engine attachments, such as stuffing boxes, governors, counterbalance, cranks, &c. Then we ors, counterbalance, cranks, &c. Then we find illustrations of portable engines, from 8 to 20 horse-power, detached engines and boilers, return-flue portable boilers, double engines, locomotive boilers and two-plate stationery boilers, to which of late so much attention has been given. The engravings attention has been given. The engravings are well executed and the matter is arranged in a convenient form.

Electrical Supplies.

An extensive catalogue has just been issued by the Electrical Supply Company, of 17 Dey street, New York. It covers 160 pages and is profusely illustrated with enparatus. The descriptions are more complete than usual in publications of this kind and deserve the attention of all interested in applied electricity.

Well-Boring Machinery.

The American Well Works, Aurora, Ill., sue a new edition of their illustrative and descriptive catalogue and price list. An important feature of the new catalogue is the illustrated description of a new method of sinking wells. The improvement consists in connecting to the lower end of the tubing to be sunk an annular-shaped saw of the diameter of the piping. The piping is set on end in the derrick and is revolved by a mechanical contrivance which grips the well casing firmly and at the same time allows it to descend with comparatively little friction, The upper end of the tubing has a swiveled hose connection through which a stream of water is forced, which goes down the well casing and, passing between the teeth of the saw at the lower end, carries the dirt and debris that has been cut loose up on the outside of the pipe to the surface. As fast as one length of pipe is sunk into the ground another is connected without stopping the machinery, so that the operation is continuous. The catalogue contains over 200 pages and is illustrated throughout. All the goods are described and instructions given for operating the well-boring machin-ery, erecting windmills, &c.

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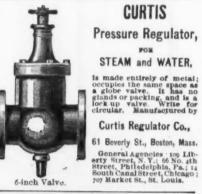


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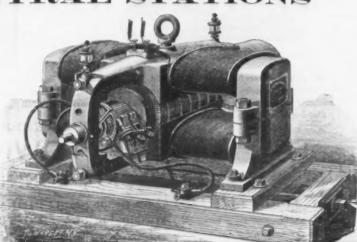
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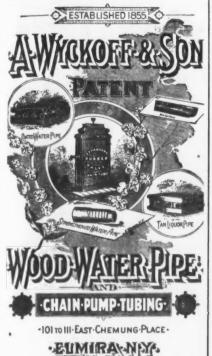
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chases made now are to be dated. This means that payment made in February for goods now bought is to be considered a cash payment, and consequently subject to 2½ per cent. discount, or that payment without discount may be made by a three months bill dated the 1st of February. This, too, is not for season goods, which may have to be bought a long time in advance, but for regular parcels of goods bought for immediate consumption, and it is quite clear that this practice of the wholesale houses has a great effect in leading retail dealers to give long effect in leading retail dealers to give long credits to their customers. The retail trader says: 'I can afford to give the person dealing with me credit, because I myself have not to pay for the goods for many months yet."

SCIENTIFIC AND TECHNICAL.

Coefficients of Efflux.

In the October number of the Journal of the Franklin Institute Mr. J. P. Frizell directs attention to the well-known fact that the application of a short pipe to a simple the application of a short pipe to a simple orifice in a reservoir results in a material increase of the discharge. "Most writers on hydraulics," says Mr. Frizell, "treat this phenomenon as an ultimate fact of science, to be determined only by experiment. It is, of course, sufficient for practical purposes when this case occurs to be able to make use of the experimental coefficients of effects. of the experimental coefficients of efflux. It is greatly conducive, however, to clearness is greatly conducive, however, to clearness of knowledge to be able to refer this fact to the well-known principles of impact and momentum. Moreover, in hydraulic computations the same phenomenon presents itself in many forms to which no experimental coefficient is applicable. The writers of the splendid article "Hydro-Mechanics," in the new Encyclopedia Britannica, give their view of the rationale of this phenomenon, and express the coefficient of efflux from a short pipe thus: short pipe thus:

 $\sqrt{1+\left(\frac{1}{\mu}-1\right)^2}$

 μ being the coefficient of effiux from a simple orifice, c that from the short pipe. If μ be put = 0.615, this gives c = 0.85, which is an approximation to the truth, but too large." Mr. Frizell's reflections on the subject lead to a somewhat different formula, the result obtained by him being, coefficient

 $\sqrt{\frac{1}{\mu^2}} - 2\left(\frac{\varphi}{\mu} - 1\right)$

value of \varphi is, according to Weisbach (" Mevalue of φ is, according to Weisbach ('Mechanics,'' &c., Coxe, p. 855), 0.975. μ varies slightly with the head. Weisbach takes 0.615 as the working value of μ . Substituting these values in the formula for c, Mr. Frizelf finds c = 0.824. Weisbach gives 0.815 as the mean experimental value of c, but the values found by different experimenters differ considerably. differ considerably.

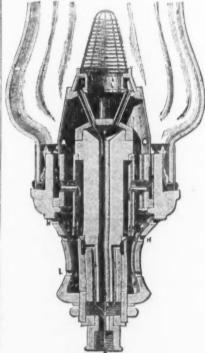
Clay as a Water-Proofing Material. A new mode of treating clay for use as a water-proofing material has, according to the Builder, been devised by Mr. Thomas Fraser, of Aberdeen, a gentleman interested in the manufacture of bricks and tiles. It is usual in puddling with clay to prevent the penetration of water to place the clay in penetration of water to place the clay in trenches, or between rows of sheet piling, in a plastic condition, mixing it first with water and tempering carefully before using. It occurred to Mr. Fraser to test the permeability to water of clay tempered with various proportions of water, and he found that when mixed with all the water that the colid when mixed with all the water that the solid mass would take up the clay was easily penmass would take up the clay was easily pen-etrated by liquids. It appeared also that as the clay absorbed moisture it increased in volume, and he reasoned from this that conversely if the volume were prevented from increasing absorption would be re-stricted, and the clay might be maintained with certainty at such a point of moisture as to have its maximum resistance to reacter. with certainty at such a point of moisture as to have its maximum resistance to penetratration by water. In order to accomplish this result it would only be necessary to put the clay in place in the form of fine dry powder, packed in so tightly as to be incapable of absorbing more than a certain percentage of water. In practice Mr. Fraser proposes to reduce the clay to very fine powder and pack it into trenches in the ordinary way. So treated it is found when ordinary way. So treated it is found when the water is allowed to reach it to absorb about 35 per cent. of its weight, but the expansion due to this compresses the mass so letter was presented from Joseph Nimmo, much that it remains impenetrable.

Surveying by Electric Light.

Mr. Otto Chrismar, a professor at Schem-nizt, in Hungary, has applied the incan-descent lamp as fed by accumulators to facilitate surveying operations in ill-lighted mines, by means of the theodolite or level. A magnetic compass might, of course, be influenced by the currents. Engineering thus describes the arrangement: Two lamps are employed, one large to light the angle to be taken, and a miniature one to light the vernier. We need not enter into the devernier. We need not enter into the de-tails of these lamps or of the accumulators tails of these lamps or of the accumulators and the connections, but it may be mentioned that two separate accumulators are employed, both portable. One of these goes along with the larger lamp, and the other with the smaller lamp and instrument. While upon this subject we may add that a French engineer recently made an equality While upon this subject we may add that a French engineer recently made an equally interesting application of the incandescent lamp to a boring appliance. Some time ago an underground gallery closed in and some miners were entombed. In order to ascertain their fate, if possible, and see what had taken place in the cavity where they were, a set of incandescent lamps were designed so as to go down into the cavity along with a bore rod from above. Besides designed so as to go down into the cavity along with a bore rod from above. Besides these lamps a photographic apparatus also accompanied the rod. Conductors carried the current inside the hollow rod, and the lamps and camera were operated from above. The result was some photographs of the interior, showing the deep is of the cavity, and among it the deed to the form cavity, and among it the dead body of a miner partially buried in the earth. The Clamond Gas Burner.

Profs. A. G. Grunhill and W. C. Unwin.

siderably altered and improved since its introduction a few years ago. In this burner, which is a French invention, the light is produced by burning ordinary coal gas within a basket of magnesia, which is thereby brought to a high state of incandescence, and from which a white steady light is radiated. It may be said to corsist of three different parts. The first and inner part is a central column, B, of fire proof material. The second part consists of two concentric cylinders placed round the inner column and communicating one with the column and communicating one with the other through the cross-cuts J. The third part is a china cup inclosing the other parts and perforated with a number of holes. The gas burns in two different places. From A it passes directly through B, at the top of which it branches off through tubes to an annular chamber. annular chamber, D, from which it escapes through the openings a a a, where combustion takes place. The other combustion occurs within the circular space G I between the central column and the inner of the two surrounding cylinders. Through two channels, E E, in the lower part of the two channels, E.E., in the lower part of the central column the gas passes into a circular chamber, F.F., and escapes through small holes in the upper partition of this chamber, where it burns. The product of this combustion passes out into K through the cross-cuts J. The air entering through the holes H L of the outer china cup passes along the inner of the two concentric cylinders, which is heated to redness, and rises highly heated toward the upper annular burner, where the gas burns at a a a in small separate flames, each entirely surrounded by the hot air. This insures perfect combustion of the gas within the basket of magnesia placed above, and which is thus brought to a state of incandescence. It is claimed for the light produced that it will stand comparison with the electric light. Like that, it shows colors electric light. Like that, it shows colors

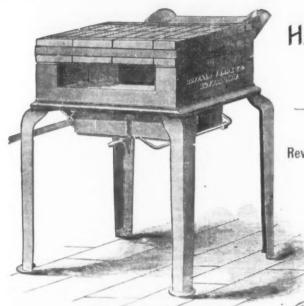


Sectional View of the Clamond Gas Burner,

perfectly true, and will enable an observer to distinguish between the most delicate shades, allowing of the finest work being executed as by daylight. It is, moreover, stated to be perfectly steady. As the Clamond burner can be fixed to any gas bracket or lamp now in use, its adoption causes no other expense than the cost of the burner itself. There is no expensive installation, and, when used in combination with the electric light, it is claimed that a uniform lighting will be obtainable instead of the lighting will be obtainable instead of the unpleasant contrast between gas and electricity. Another important advantage obtained by the Clamond burner is the saving effected in the consumption of gas as compared with the same power of light obtained from ordinary burners. The English agent for this burner is P. A. Holst, 40 Upper Thames street, London.

letter was presented from Joseph Nimmo, Jr., addressed to the Chamber of Commerce and other commercial and financial associations of New York, on the subject of seacoast defenses, with especial reference to New York City and that portion of our shores the defense of which would naturally be included in any well-devised scheme for its defense. It is stated by the Board on Fortifications, in their recent report, that Long Island Sound is perfectly defensible at Long Island Sound is perfectly defensible at its eastern end. The exact language em-ployed is this: "Plum Island and Gull Islands would, if fortified, command the eastern entrance to the Sound." The Coast Survey hydrographic chart clearly indicates this. The available channel for armored ships, known as "The Race," is only 3½ miles wide, with "Valiant Rock" midway miles wide, with "Valiant Rock" midway in the passage. Steel guns capable of throwing steel shot weighing 1800 pounds a distance of from 8 to 11 miles, if placed here behind impregnable armored forts, with the accuracy of aim attainable only on the land, would have the requisite power to crush the turrets of any armored ship now that At the same time the decks of an marine mines could also be massed at this point and the defense made so formidable point and the defense made so formidable that no fleet in the world would ever attempt the passage. By the means just described the shore of Connecticut and the north shore of Long Island, as well as New York City, would be fully protected. Of course the most forminable and expensive defensive works of New York City will be at the Sandy Hook entrance. The nature and location of works has not, Mr. Nimmo thinks, been determined by our military engineers. One of our English exchanges publishes the following illustrated description of the

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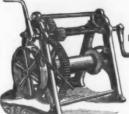
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The case of the Pennsylvania Coal Company, plaintiffs in error, against J. Gardner Sanderson and Eliza, his wife, in right of the wife, defendants in error, has been finally decided by the Supreme Court, by the reversal of two previous decisions, in a decision for the coal company. The case is of the utmost importance to mining operators, cil operators and all others doing business on the banks of natural watercourses, as well as to all owners of riparian property. The history of the case may be thus briefly stated: In mining anthracite coal it is necessary to keep the mines clear of water which accumulates in large quantities, and which must be removed either by gravity or by powerful engines and pumps, and must find its escape through the natural water-courses. This water is acidulated with sulphuric acid, and consequently is destructive to iron pipe, kills fish and cattle refuse to drink it. The Pennsylvania Coal Company own a large colliery in Scranton called the Gipsy Grove Works, and the water from this mine is pumped and discharged into a small stream called Meadow Brook, a tributary of the Lackawanna River. In 1868
J. Gardner Sanderson built a handsome residence on Meadow Brook, below the colliery, on which he made a fish pond and provided machinery to force the water into tanks in his house for domestic use. As the opera-tions of the colliery grew and the discharge of mine water increased the water of the brook became so contaminated as to destroy Mr. Sanderson's pipes, kill his fish, and, indeed, became totally unfit for use. He then

sued the coal company for damages.

In 1878 the case first went to the Supreme Court and the company were then held liable. Twice since it has been before the Supreme Court and the same decision was affirmed. In February last it again came up from the lower court, and this time the Supreme Court has reversed its former action and given judgment against the Sandersons, and the matter is finally settled. Inasmuch as numberless suits had been brought in the State under the former decisions by riparian owners against mining operators in the an-thracite and bituminous coal regions, it became of the utmost importance to the entire mining interests of the State that these decisions should be reversed if possible.

The argument for the mining company

was prepared with great care by ex-Governor Henry M. Hoyt and J. M. and W. P. Gest, and the following four legal propositions great laid down. tions were laid down:

r. The question is one of vast importance and has never been thoroughly examined and never before decided.

2. The true theory of negligence is that damages resulting to another from the natural and lawful use of his land by the owner thereof are, in the absence of malice or negligence, a wrong without violation of the

3. In order to permit the development of natural resources and free prosecution of a lawful business trifling inconveniences must sometimes give way to necessities The only question here is what constitutes a reasonable use of the watercourse in the prosecution of a lawful business.

4. The mining industry has its perticular usages and customs, dictated not only by convenience, but by necessity, and are a part of the very law of nature, and the private interests of the individual must defer

In the decision the court says : "If damages may from time to time be recovered either in the present form or as for a nui-sance, punitive sums may be resorted to to prevent repitition or to compel the abate ment of the nuisance. Indeed, if the right to damages in such case is admitted, equity may, and under the decisions of this court

undoubtedly would, at the suit of any ripa rian owner take jurisdiction, and upon the ground of a continuous and irreparable in jury enjoin the operation of the mine altogether.

* * The defendants have done nothing * * The defendants have done nothing to change the water or diminish its purity save what results from the natural use of their own property. The water as it is poured into Meadow Brook is the water which the mine naturally discharges; its impurity arises from natural, not artificial, causes. The mine cannot, of course, be operated elsewhere than where the coal is naturally found, and the discharge is a necesnaturally found, and the discharge is a necessary incident to the mining of it. * * * The right to mine coal is not a nuisance in

itself; it is a right incident to the owner-ship of coal property, and the owner cannot be held for permitting the natural flow of mine water over his own land into the watercourse. * * * The defendants were engaged in a perfectly lawful business in which they had made large expenditures, and in which the entire interests of the community were concerned; they were at liberty to carry on that business in the ordinary way, and were not while so doing accountable for the consequences which they could not control."

and Trunkey dissent.

At the annual meeting of the Iron and Steel Institute, recently held in London, Daniel Adamson, of Manchester, was elected president for the ensuing year. President Percy, the retiring officer, delivered an ad-dress on the iron and steel making resources. of Great Britain and the United States. He showed that the British output of Beasemer steel was constantly decreasing, and he warned his hearers that, if there should be a war or commercial struggle, blind belief in their own supremacy would be dangerous, and that disregard of their antagonist's power would result in disaster.

The decision of the Supreme Court in the store order case recently delivered in Pitts-burgh banishes the long ton in Pennsylvania except where its use is specifically authorized by statute or provided for by Bright Metal Cages, in Brass, Bronze and Silver Plate.

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NEW AND BEAUTIFUL DESIGNS JUS

The Responsibility of Mine Operators the Supreme Court decides in effect that in any contract calling for the delivery of so many tons of iron or other substance a 2000pound ton is all that can be exacted in law unless the contract calls specifically for a unless the contract calls specimeary for a larger ton. A custom at variance with the statute will not be recognized by the courts, and manufacturers, mine operators and business men will do well to take note of this and make their contracts accordingly.

Foreign Markets.

FRANCE.

FRANCE.

PARIS, September 29, 1886.—Metals.—Greater animation has ruled in the Netal market in this city at an improvement in all but Spelter. We quote at the close, in francs, \$\chi\$ 100 kg.: Copper.—Chili Bars, 106.50 \(\text{ for 110} \); Ingots and Slabs, 111 25; Best Selected, 112.50, and Pure Corocoro Ore, 110; Tin.—Banca, 278.25; Billiton, 277.50; Straits, 273.50; Australiau, 275, and English, 289.50; Lead, 32.50 \(\text{ for 33.25} \), and Spelter, 35.75 \(\text{ 36.36} \), 255. From.—The market here has been quiet and steady at 13.50 Flooring, and 14 Merchant, delivered at La Chapelle; and Old Rails are selling at 7.50. Advices from the Department of the North are not reassuring; there is a lack of orders, inducing some makers to discharge some hands and others to reduce working hours. The dull season being at hand, more workmen may have to be discharged. This des not, however, apply to the rolling mills, which are in receipt of orders sufficient to keep them going for a couple of months to come. Meanwhile the price of Cast-Iron Pipe has been raised from 13 francs to 14 francs. While there is a brisk demand for Rivets, Bolts are neglected. In the Ardennes matters are proceeding satisfactorily, though larger orders would be welcome: prices are steady, but may have to be shaded if orders do not soon increase in volume. The Haute Marne is quiet, but prices have undergone no change. Sheets are firmer at 16.50 \(\text{(d)} 17 \). Foundries are more active with the approach of the winter season. St. Etienne is dull and unchanged. Coke, Merchant, at 11.50 \(\text{(d)} \), 150 descriptions and the former and the season. St. Etienne is dull and unchanged. Coke, Merchant, at 11.50 \(\text{(d)} \), 150 descriptions and unchanged. Coke, Merchant, at 11.50 \(\text{(d)} \), 150 descriptions are season. St.

BELGIUM.

BELGIUM.

BRUSSELS. September 23, 1886.—Iron.—There has been no essential change in the Iron market in Belgium. Prices are more firmly held by the syndicate than the previous week. There were rumors that there had been some shading of syndicate prices by some maker or makers, but they were unfounded; the bad impression made was, therefore, of short duration. We quote Merchant, 10 @ 10.50 francs \$2 \text{ 100 kg.; Beams, 10.; Angles, therefore, of short duration. We quote Merchant, 10.50; Commercial, 16.50; Thin, 18.50, and No. 4, 20.50. There has been no change in Pig Iron. We quote Luxembourg Forge, 3.80; Charleroi, 3.80 @ 5.50 for Forge and Foundry respectively. The making of Steel Sleepers is now becoming a well-established industry in Belgium after the practical experience made therein by Angleur and Cocker-ill. Meanwhile general business has been improving in Belgium not only by reason of the good local demand for all leading commodities, but also under the impulse of the advices from abroad. This being the case the repeated attempts in the Coal regions to resuscitate a period of gigantic strikes has failed to influence trade adversely. The elements for a good trade are sound, for they rest on moderate prices and stocks. Coal.—Although the winter demand for Coal has begun to set in gradually, prices have not been raised and are the same they were two months since.—Moniteur Industriel.

GERMANY.

GERMANY.

Hawsers, September 29, 1886.—Iron.—In consequence of a good demand in Rhenish Westphalia for Forge and Foundry Pig. Wire Rods and Bar Iron, there is a more confident feeling noticeable in the district. There has been no decided advance yet, but there is a well-founded hope of a speedy general improvement. Spiegel has been well sustained since the slight decline in July. Forge Pig is in demand at unaltered figures. Although Forge Pig is more wanted, it cannot be quoted any better than before. It is upheld with some difficulty at current rates. Thomas is decidedly firmer. This is less the case with Bessemer. Luxembourg Forge Pig is still weak; Foundry firmer. Rolling mills are meanwhile quite busy, but do not yet succeed in raising prices. Beams sell with ease at the low figures still prevailing. Boiler Sheets are very active, but at old rates. Export orders have dropped in for Wire Rods, causing greater firmness. Drawn Wire and Wire Nails are flat still. Foundries and machine shops are in receipt of larger commands. In Upper Silesia the orders for Finished Iron have been rapidly on the increase, so that an advance impends, but Pig Iron is as depressed as ever, the supply still being excessive. Metals—There has been a more lively demand for Lead. Copper and Tin are unaltered, We quote at the close, in marks § 30 kg.: German Lead, 13.50 @ 14; Lake Copper, 55; Tin, 104 @ 108, and Speiter, 14.54 @ 15.—Borsenhalte.

HOLLAND.

ROTTERDAM. September 26, 1886.—Tin.—The mar-kot during the week has been firm, with sales to arrive of Billiton at 61.50 guilders 250 kg. Banca, September, is held at 62, and November delivery at 52.1236—Koch & Vlierboom.

SPAIN.

BILBAO, September 25, 1886.—Iron.—The market has been moderately active only. Shipments have been made in good condition, but on a limited scale. Freights have risen slightly, but Rubio remains 6/1 @ 6/3½, and Campanil, 6/3 @ 6/4. Shipments to date, 2.596,178 tons, against 2.516,073 last year. Coal.—Strange to say, a Swedish vessel has just landed at Barcelona a cargo of Australian Coal, although quite near that port there is abundance of good Coal.—Revista Minera.

AUSTRIA.

VIENNA, September 25, 1886.—Iron.—The better ceiling in the Austrian Iron trade has been fully maintained. Austrian and Hungarian production now being well under control, while Iron markets are tending upward, the situation has become a ingularly sound one. As at the same time ship of coal property, and the owner cannot be held for permitting the natural flow of mine water over his own land into the watercourse.

* * The defendants were engaged in a perfectly lawful business in which they had made large expenditures, and in which the entire interests of the community were concerned; they were at liberty to carry on that business in the ordinary way, and were not while so doing accountable for the consequences which hey could not control."

Chief Justice Mercur and Justices Gordon and Trunkey dissent.

Valparabo, August 6, 1886.—Copper.—The higher prices which exporters were able to pay in consequence of a declining exchange induce holders to meet the market squarely, leading to sales of 25,700 quintals at \$17.05 \(\preceq \) \$17.52\(\preceq \) to board. There has been an active demand for special brands for the French market; \$17.52\(\preceq \) with 30/ freight equals \$28, 11/4. Salipeter.—Consuming markets reporting greater animation during several days in succession, after a prolonged stagnation; there has been more business done, resulting in sales summing up 758,000 quintals Nitrate at \$3.10 \(\preceq \) \$3.25 for 95 \$5. Since then we are weaker on less favorable cablegrams, the price closing nominally at \$3.25, which is equal to \$28 in England. July shipments aggregate \$25,00 tons to Europe, and 5500 to the United States. There were loading on August 1, 28,000 tons for Europe and 3000 for the United States. Charters since July 23 were 28,300 tons for the former and 2700 for the latter. Coal.—A cargo of Newcastle, West Hartley, Steam sold at 29; Orrell is nominal; Australian, \$2\(\preceq \) and Smelting Coal. \$24. Exchange has fluctuated, the tendency being downward, closing at \$294\(\preceq \) days sight on London.—Webs.

EAST INDIES.

AND METALLURGICAL REVIEW.

New York, Thursday, October 14, 1886.

DAVID WILLIAMS, - - - Publisher and Proprietor JAMES C. BAYLES, - - Editor. CHAS. KIRCHHOFF, Jr., - Associate Editor JOHN S. KING, - - - Business Manager

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The Law and Order League in St. Louis.

The serious disturbances of the past nine months, resulting from and attendant upon the great railroad and other strikes, have created in St. Louis a feeling of uneasiness demanding organization for the better protection of life and property. This feeling has crystallized in the formation of a Law and Order League, which has issued the following circular:

OFFICE CENTRAL BOARD, LAW AND ORDER LEAGUE, St. Louis, Mo.

To the Members of the League, Greeting: In view of numerous requests for information proceeding from the various chapters as to the proper or proposed relations of the Law and Order League of St Louis to the political conditions at this present existing, the Central Board counsels the chapters as follows:

The Law and Order League stands organized the principle announced in its constitution.

The Law and Order League stands organized upon the principle announced in its constitution. It insists upon the enforcement of law. It insists upon the preservation of peace, order and quiet in the community. It insists upon a non-interference by any man, or any set or association of men, with the lawful rights of any other man, or set or association of men. It insists upon the right of every citizen to work or not work as he pleases, and to make and carry into effect such lawful contracts as may be agreeable to himself. lawful contracts as may be agreeable to himself and other contracting parties. In insists that their fellow-citizens in their various walks of business, whether as employees or proprietors, mus and shall be protected in all the rights guaranteed to them by the Constitution and laws of the State, and that men, or associations of men, who vio-lently interfere with these rights are law breakers must and shall It presents an uncompromising and united an-tagonism to riotous or anarchical demonstrations, to all forms of boycotting, and to the use of all unlawful and violent means to rectify supposed

It insists that all political parties shall nominate offices of public trust men of character, ca pacity and integrity, and to such only will we give our suffrages. It insists that bad men, whether rioters, anarchists, public plunderers, political ringsters, sympathizers with turbulency and turbulent elements, men who pander to vicious o venal voters, bad and incompetent men generally shall be defeated at the primaries and at the poles irrespective of their party connections or prof

sists that every citizen is in duty bound to faithfully discharge the duties devolvent upon him as such, especially in his participation in the work of primary meetings, nominating conven tions and elections. It insists that no man car neglect these duties or shift them upon his fellows without doing violence to his honor and patriot ism. It insists that all judges, prosecuting attor neys, grand and petit jurors, shall do their whole duty without fear or favor, and that in so doing they will have the unwavering support of this League. It insists that all public offices shall be administered solely for the public good, and that they shall not be used for political advancement or private gain. It insists that all law-abiding and patriotic citizens of the community should associate themselves together and aid in carrying into practical effect the enunciations of this League.
These are the organic principles of the Law and
Order League. To them every member stands
pledged with their time, energy and means, and around the mall good citizens of all shades of politcal or religious creed can rally as around the fiag

of our common country.

No honest man, under the obligations of this

who is in sympathy with any associations or practices which are hostile to the foregoing declarations. The League reposes in the judgment of its members as to how they should act in individual cases. The influences of the League are intended to be, and are, in fact, in harmony with its declarations. But to assume a position as a political party, or to dictate to the individual judgment of its members as to what is right or wrong, or to in any wise limit the personal freedom in the exercise of the elective franchise, is, in the opinion of the Central Board, neither wise nor in harmony with our declared principles. Counting among its members men of all shades of opinion on party matters, the Law and Order League is concrete who is in sympathy with any associations or pracmatters, the Law and Order League is concret and a unit by virtue of its principles, which are above all parties and interfere with the proper functions of none, so long as they operate within the limitations of law. If the future should bring about a marshaling together of anarchical or law breaking or boycotting elements for the purpose of measuring political strength with the patriotic people of the community or country, a united political action by the League as such might in such an issue be advisable. Sufficient unto the day is the evil thereof. No work ever undertaken in this community is

more important as bearing upon its peace and prosperity than the work of the Law and Order League. Give to the world the assurance that here labor and capital, which are mutually dependent upon each other and essentially the same, are fully protected; that public trusts are administered for the public good; that taxation is at a minimum; that all rights of life, liberty and property are safe not only by reason of law, but by reason of a living not only by reason of law, but by reason of a law active public sympathy that will not brook their infraction; that enterprises of all kinds can be safely entered upon, because every opportunity for success will be offered, and immediately the stream of immigration that is spreading over the great West immigration that is spreading over the great west will flow to St. Louis as surely as the magnet turns to its pole. These are the things that are needed more than your great river, or your iron mountain, or your mines of mineral and ore. Capital and brains and muscle made out of sea marshes a great commercial Holland, and they will always gravitate to the place where they can operate with safety. What, then, are the immediate duties of the manners of the Legister, yote and see to members of the League? Register, vote, and see to it that not only you who are Leaguers, but that your neighbors also, do both. The League can safely trust the individual conscience of its members to do that which is right, and as becometh a good

and patriotic citizen.

By order of Central Board, L. O. L.

We do not known enough of the movement behind this proclamation to be sure whether its real object is expressed or must be found " reading between the lines." So far as the circular is concerned, the declarations are such as any law-abiding, self-respecting citizen can heartily subscribe to. St Louis has certainly suffered heavily in wealth and reputation from the outrages committed in the name of labor, from bad government and from the consequences of the neglect by the better class of its citizens of the arduous and often unpleasant political duties of the primary and the nominating convention. The ground lost can only be recovered in St. Louis, as it was in New York after the carnival of corruption presided over by the Tweed ring, by a spontaneous uprising of the people and the vigorous enforcement of the law against law breakers and official criminals. To this extent the movement in St. Louis is entitled to the sympathy and support of all good citizens.

So far as it touches the operations of organized labor, it needs judicious management by cool-headed, patient, moderate men. Labor has been led far astray in some instances, but it cannot be driven back with clubs to safe ground. It must be led back, by the hand, as it were, and that is possible only when undertaken by those in whom it has confidence. If any hot-headed and un-reasonable men in the League shall by word or act create the impression that the move ment is antagonistic to organized labor and seeks to oppose it with hostile influences, the resulting conflict is likely to be disastrous to both sides, and no good will come Boycotts, riots, assaults, murders of it. and the destruction of property are no part of the effort of honest labor to better its condition. In their suppression the help of honest labor can be secured, for it is inconceivable that the great mass of working men in this country are voluntarily sub missive to the tyranny of those who are bringing the labor movement into hostility to society and the institutions of civilization. The St. Louis Law and Order League can accomplish great re sults if it will set about its work in the right way and not undertake to suppress organized labor-a task as impossible of accomplishnent as an effort to bind the Mississippi in its banks with threads of spool cotton. men are not antagonizing organized labor. They are going with it, and seeking to lead it by safe paths to practicable and desirable ends, to counteract the mischievous teachings of half-educated demagogues, and to help the honest and industrious workingman to attain everything which is for his good. Organized labor is not nearly so unreasonable as it often seems to be. It needs wise and prudent leadership, and this it can get only from the classes which have risen above the wage-earning level. They will respect and follow such leadership in council. and the best elements of organized labor

way, and may yet be studied with a fair prom-

elements to be considered; time and speed of working should also be taken into account. In addition we have to deal with the function of the anvil, which, in the commercial way of designing hammers, is generally and unfortunately overlooked to a very great extent. Sharp competition and the consequent growing necessity of supplying machinery at a low price has led to a disregard of the importance of some features of construction, and, among other things, of the fact that the effectiveness of hammer blows may be very much changed by increasing or decreasing the weights of anvils. So far, however, as this particular point is con-cerned, little difficulty should be experienced in applying a remedy. The main things to be considered are the relative merits of long and short drops of light and heavy hammer heads for different kinds of work, and a careful investigation would undoubtedly bring forth results of great practical and cientific value

Condition of the Blast Furnaces of the United States, October 1, 1886.

During the month of September and thus far this month the pig-iron markets in all parts of the country have gained steadily in strength, and yet it cannot be said that there has been any pronounced movement in the direction of a resumption of work among idle furnace plants. There have been the usual changes due to the blow ing out for repairs on the part of some stacks and the relighting of the fires in others after relining. We have revised our lists, adopting that recently published by the American Iron and Steel Association. This has led to the dropping of a few furnaces out of the ranks of possibly active plants, the majority of those long idle having been stricken out of that category. Some furnaces are idle because their owners are carrying out plans of improvement; others recently equipped with modern appliances have just gone into blast, and others again have entered the list of active producers after a long period of inactivity. Then there are quite a number of stacks now under construction, so that on the whole the tendency is toward a larger make. But no one who goes carefully over the list of existing plants can, we believe, fail to be impressed with the fact, that however great the nominal reserve capacity may be, the actual equipment available for production is small, comparatively speaking, and can only be brought out by a very material rise in prices. This is notably the case with the bituminous coal and coke furnaces, but holds good, too, so far as the anthracite furnaces are concerned. We are inclined to the belief that not more than 20 per cent. of the capacity of idle furnaces, if indeed as much, could become available for production even under the stimulus of a marked advance. That is to say, the weekly capacity is not likely to reach 40,000 tons with the anthracite furnaces, or 75,000 tons for the coke furnaces, except very gradually, since it takes time to get plants ong idle into anything like a working con-

dition.

Location of furnaces.	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast	Capacity per week.
New York New Jersey Spiegel	80 15 8	12 8 8	4,246 2,708 225	18 7 0	4,358 1,011 0
Pennsylvania : Lehigh Valley Spiezel	47	35	11,578	12	3,056 40
Schuylkill Valley	44	0 20 1	6,686	24	4,513
U. Susquehan. Val. L. Susquehan. Val.	18 36	24	9,134 7,698	12	2,297 2,280
Total Sept. 1	199	114	35,819	85	135

As compared with i	ormer months	we have
Date.	Furnaces in blast.	Capacity per week
October 1	114	35,819
September 1		88,907
August 1	190	86,841
July 1		86,762
June 1	121	88,239
May 1	119	26,994

Reviewing the different districts in detail ve may state that no special changes have taken place in New York. In New Jersey the Chester Furnace blew in again, and somewhat erroneous accounts have been published concerning the manner in which it was done. Mr. Taylor informs us that hot air was driven into the furnace first. the oven having been fired with wood for two days. After blowing for about one hour the wood in the furnace ignited, the blast having a temperature of 525° F. heat, and not 340°, as reported. Mr. Taylor adds that it is supposed to be the first time that a furnace was ever let in in this way. It is a matter of some interest to note that With the Chester and the Pequest furthe peculiarities of drop-press work have naces again in blast the New Jersey received attention only in a very general output will now reach its normal condition. In the Lehigh Valley the ise of valuable results. Every one who has the Lehigh Zinc Company's spiegel furnace had experience in the use of drop presses blew out on the 27th ult., but otherwise knows that, contrary to what might be ex- there have been no changes. Three or four pected, there is an important difference be- stacks, however, are being relined, some of

rent month. The Bloom is being modernized. The Irondale was hampered during September by low water, but is again running up to capacity. In the Lower Susque-Steel Company will go in as soon as repairs in Virginia. now being carried out are completed.

The following is the status of the bituminous and coke furnaces:

Bituminous or Coke Furnaces in Blast, October 1, 1886,

Pennsylvania: Pittsburgh. Spiegel. 1 1 450 0 0 0 Allegheny Valley. 2 1 449 1 1115 Shenango Valley. 28 14 6,910 9 8,995 Youghi. Valley. 6 3 1,014 8 855 Juniata & Conem. 20 12 4,837 8 2,652 Spiegel. 1 1 250 0 1 Baryland. 2 1 130 1 90 Virginia. 10 7 3,390 3 975 West Virginia 6 4,972 7 3,560 Mahoning Valley. 15 8 4,972 7 3,560 Macellaneous. 18 15 8,547 3 1,075 Centucky. 3 8 896 0 0 Cennessee. 10 7 2,712 8 1,025 Centucky. 3 8 896 0 0 Cennessee. 10 7 2,712 8 1,025 Centucky. 3 8 896 0 0 Cennessee. 10 7 2,712 8 1,025 Centucky. 3 8 896 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 896 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 896 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 96 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 96 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 3 8 966 0 0 Cennessee. 10 7 2,712 7 1,025 Centucky. 10 1 1 1,0	Location of furnaces.	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast.	Capacity per week.
Dhi	Pittsburgh Spiegel Allegheny Valley Shenango Valley Youghi, Valley Juniata & Conem Spiegel Maryland Virginia West Virginia	1 28 6 20 1 2	1 14 8 12 1	450 449 6,910 1,014 4,837 250 120 8,390	0 1 9 8 0 1	0 115 8,995 855 2,652 0 90 975
1 1 000 0	bhic : Mahoning Valley. Hocking Valley Hocking Rock Miscellaneous Centucky. ennessee teorgia. labma. ndiana llinois. lichigan lissouri.	15 12 18 8 10 2 10 2 16	6 11 15 8 7 2 8 1 11 0 8	4,972 1,071 2,274 8,547 896 2,712 1,015 8,358 125 9,984 0	9 1 3 0 9 0 2 1 5 2 5	1,850 80 1,075 0 1,025 0 560 210 1,690 580 1,975 850

As compared with former months we

have:	
	Furnaces Capacity per week.
October 1	186 70,802
September 1	135 69,206
August 1	133 68.852
July 1	182 71.816
June 1	129 70.766
May 1	129 67,888

No changes have taken place in the Pitts ourgh district, which is still working up to full capacity. In the Shenango Valley the Henderson Furnace started on September 14, and the furnace of Messrs. Raney & Berger and the Etna were not producing for a brief period during the month. Everything has remained unchanged in the Allegheny and Youghioghenv valleys, and it need only be noted that Oliphant Furnace will probably go into blast some time this month In the Juniata and Conemaugh valleys the Emma is again in blast, and the Rockhill Furnace was running with only half the power of its engine, thus somewhat relucing its make.

In Virginia one of the Longdale furnaces went out on the 13th of September, but is expected to resume operations on the 13th of the current month. The Gem blew in on the 20th, and has therefore only reached full work during the current month. The output of the Princess Furnace is limited by its boiler capacity. In West Virginia the Irondale was stopped for one week by a breakage of its engine. In Tennessee full work was cut short by the scareity of coke at the Citico Furnace and an idleness of No. 2 Rockwood. In Alabama the Sloss lost 10 days. In the Mahoning Valley, Ohio, the Mary Furnace went out on the 12th of September to reline, thus further reducing the current make of that section. In Indiana the Vigo Furnace blew in again on the 1st inst., while in Illinois the Calumet Furnace was lighted on the 2d. The South Chicago furnaces lost two days, which, with their heavy product, represents almost the make of a small furnace for an entire month. The three Union furnaces, although they have now been in for about nine

months, are keeping up a heavy product. The following is the status of the charcoal furnaces:

Charcoal Furnaces of the United States, October 1, 1886,

Location of furnaces.	Total number of furnaces.	Number reported in blast.	Capacity per week,	Number reported out of blast.	Capacity per week.
New England	14	5	540	9	404
New York	9	8	391	6	861
Pennsylvania		- 6	442	17	470
Maryland	18	1	100	128	750
Virginia	28	14	714	9	480
North Carolina	2	1 0	190	1 1	190
West Virginia	17	0	0	8	165
Ohio		8 3 0	480 805	11	580
Kentucky	8 8 2	9	460	1 4	2.6
Tennessee	0	0	400	5 2	145
Alabama	10	7	1.491	1 3	360
Michigan	25	15	4.097	10	2,126
Wisconsin	11	38	652	8 1	795
Minnesota	1	0	0	1	210
Missouri	4	1	210	1 8 1	690
Texas	9	1 0	230	1	110
California	1	0	0	1 1	245
Washington Ter'y	1	0	0	1	175
Oregon	1	0	0	1	100
Total, Oct. 1	178	68	10,232	105	8,622

												in	rnaces blast.	Capacity per week
October	1.				0.	 . ,	 		0	0			68	10,232
Septemb	e	r :	1.					٠			۰		68	10,797
August													63	9,725
July 1													61	9,885
June 1													61	9,867
May 1													45	8,211

There has been no change of any importween the effect produced by a light weight which may be ready during the current tance among the charcoal furnaces of New George, who has developed lately as the falling a long distance and that due month. In the Schuylkill Valley report we England and New York. The Kent Furnace leader of the laboring element, and his confalling a long distance and that due month. In the Schuylkill Valley report we England and New York. The Kent Furnace to a heavy weight falling a shorter dis- have seggregated the Luciuda from the will go in probably on the 1st of November, clusions are applauded vigorously by such a tance, some kinds of work requiring one rest, it being now run on spiegeleisen. and the same date is fixed for the Chatham, first rate paper as the Evening Post, which form of hammer and other kinds an- Among the furnaces out of blast there are in New York. The Eagle Furnace was to is sharply antagonistic to his political preother, and yet the total energy devel- eight controlled by the Philadelphia and blow in on the 5th or 6th of the current tensions. Mr. George quotes a number of oped in the two cases may be exactly equal. Reading Coal and Iron Company. In the month, and the Pine Grove Furnace lost one the letters in question, but at the same time

weights of the falling bodies are not the only | Furnace will probably go in during the cur- Isabella made no iron in September, and the product of the Oley was smaller than usual. It will be observed that only one of the Maryland furnaces is running, while there has been a very large increase in the number hanna Valley No. 1 of the Pennsylvania of furnaces which are making a campaign

> In Kentucky the Hunnewell Furnace was in blast only 18 days in September, and the product did not, therefore, come up to its monthly average. In Alabama the furnace at Jenifer was out in September. The other furnace of the Clifton company, the two Shelby furnaces, the Tecumseh and the Woodstock, made together in that month 5291 tons. In Tennessee the Cumberland, La Grange and Warren furnaces together produced 2602 tons in September. In the Northwest there has been little change. We estimate the make of the 15 furnaces running in Michigan at 17,828 gross tons.

We estimate the actual product for nine months of the current year as follows:

Production of Anthracite Pig Iron, Nine

Months, Gross Tons.	
Pennsylvania:	
Lehigh Valley	435,815
Schuylkill Valley	
Upper Susquehanna Valley	108,788
Lower Susquehanna Valley	319 151
New York	150,487
New Jersey	101,495

By way of comparison we have computed the average monthly output for the year 1885, for the first six months of 1886, and for the first nine months of 1886, as follows:

Average Monthly Output.

Pennsylvania: Lehigh Valley	Year. 1885. 85,117	Six Months. 1886. 47.701	Nine Months, 1886, 48,424
Schuylkill Valley Upper Susquehanna	15,241	25,548	27,081
Valley Lower Susquehanna	9,570	12,584	12,097
Valley New York New Jersey	31,982 10,824 5,481	36,314 16,641 11,773	85,461 16,721 11,277

The production of bituminous and coke pig is estimated as follows:

Production of Bituminous Coal and Coke Pig Iron-Gross Tons.

Donnamimonto		Nine months.
Pennsylvania		,980,564
Virginia		98.524
Georgia	** **************	32,027
Alabama	*** ** ****** ******	133,647
Kentucky		64,092
Tennessee		100.048
Ohio		040,001
Illinois		908.578
Missouri		82,974

Adopting the same system of average monthly product we have :

Average Monthly Output

2 ceruge	Monthly	Output.	
Parameters	Year. 1885.	Six months. 1886.	Nine months 1886.
Pennsylvania	89,144	106,186	108,952
Virginia	11,245	10,219	10,947
Georgia	2,019	8,308	8,558
Alabama	11,151	16,145	14.849
West Virginia	5,134	7,433	7.121
Kentucky	2.444	2,681	3.037
Tennessee	9,672	12,458	12,216
Ohio	89,877	68,564	68,708
Illinois	24,408	29,111	88,781
Missouri	2,204	3,434	3,668

It does not follow, of course, that the districts showing the greatest increase are the most favorably situated; on the contrary, it illustrates clearly in some instances how the pig-iron industry of some sections was able to come up only when a revival began to make itself felt.

Condition of Labor in Europe and in the United States.

The Pennsylvania Bureau of Industrial

Statistics has introduced a feature in its annual report, issued for the year 1885. which has been widely misunderstood, and has been tortured into evidence in support of false theories. The bureau has sent out a large number of blanks to employers, largely in the coal and iron trades, containing, a number of questions bearing upon the earnings and expenditures of wage-earners in those trades, and upon their general condition. In all 65 replies were received. Of these 32 were miners or men employed in some capacity in the bituminous or anthracite mines of the State, 16 were puddlers, heaters or rolling-mill men, and 17 were engaged in other employments, the majority being laborers, the list including also ma-chinists, locomotive engineers, carpenters, paper-hangers, &c. These replies are printed evidently as they were received. They are not accompanied by a single word of comment or explanation. We are not told whether they were all that were received, or whether they were only those supposed to contain information of general interest. Internal evidence inclines us to accept the former as being probably the fact. Now there were, according to the compilation of the same bureau, 139,061 miners in the bituminous and anthracite collieries of the State, to which the statistican adds at least 14,000 persons employed not reported among the average number of persons employed. Out of 153,000 men we have the evidence of 32. Out of 40,000 employees in iron works 17 gave the information asked for. Eighteen coal miners and four ironworkers were of foreign birth, and the majority throughout all of these had been employed in a similar capacity in their native country. This mass of evidence has been the foundation of a paper in the North American Review, contributed by Mr. Henry League, can countenance any political candidate Evidently the spaces passed over and the Upper Susquehanna district the Duncannon week in September repairing its oven. The is fair enough to indicate at least that there

industrial regions of Great Britain and the

Let us analyze the evidence. Out of the 18 foreign-born men, one miner says that he was better off from 1852 to 1869 in Durham, England, than he is here, and a second one who was at work in Scotland from 1851 to gas would be less than 2 cents per 1000 1868 is of the same opinion. A third, who was a miner in Northumberland, states that for a number of years his condition was decidedly better. He adds: "As proof I supply of gas of 200,000 million cubic feet. will state that six years since I came to Granting that this may be somewhat overthis country with my wife and five children drawn, it still must be admitted that, with and had money enough left to purchase all necessaries, but to day, were I to sell off a serviceable gas producing material, it may everything I am possessed of, I could not pay off the debts I owe, much less pay our way back to Europe." Another reports that he worked up to his 18th year in Scotland, but confesses that he can say nothing in regard to comparison, "but would say that he has never experienced such uneasiness in his life as at present in trying to pro-cure the necessaries of life." Another, a Scottish miner, "never was in lower circumstances than at present." One man reports: "The first three years I was here I did well and made money; the fourth year, just about made both ends meet; last year, gone to the bad about \$200." On the other hand, quite a number of men believe that their condition is about the same, in some respects being better, in others worse. One says: "Comparing conditions in both Wales and America, I would decide in favor of America," and there are others who express the same opinion. Another report is as follows: " Wages in Scotland are smaller than here, but constant work renders men as comfortable and contented. Their provisions are coarser they have less delicacies. On the whole I believe they are more contented."

Meager as it is, the evidence is by no means uniformly favorable to the claim which Mr. George and the Evening Post are trying to establish. There is one point which both writers, curiously enough, forget entirely to take into account. In looking over the returns, wherever it can be traced, it will be found that the men left their native country a number of years ago, and that one of them is comparing his condition to day in this country with what it was at a former time, dating back from five to 15 years. Not one of them furnishes evidence which would admit of comparison at the same time or reasonably proximate periods. Now it is well known that the coal trade of Great Britain has had periods of great prosperity, and naturally those who are now suffering from the long-continued depression, which reached its climax in 1885 or early in 1886, when they wrote, take a gloomy viewof their surroundings and think regretfully of the past in the "old country." No one who has followed the course of events in Great Britain during the past two or three years can doubt that if they could compare their present condition with that of their fellows whom they left behind them the evidence would be quite different. Even if it were just to draw any general conclusions from the s ray reports printed by the Pennsylvania Bureau of Statistics-and we emphatically prenounce them valuless as evidence-they must be rejected because they attempt to draw comparisons between the condition of men at very different times. As for the reports from ironworkers, there are only four from men who formerly worked abroad, and not one of them claims that he is worse off, while others confess that they are doing better. To claim on the basis of such "facts" that the condition of labor in Europe is even approximately equal to that in this country is a monstrous distortion of the truth.

The Coal-Waste Question.

Since natural gas has come into extensive use, and has demonstrated practically in numberless ways that its advantages as compared with solid fuels are of a high the employment of gaseous fuel for all industrial purposes. That in the study of this subject the question of coal waste should they should be forced to pay a duty on figure prominently is only natural, and shows an appreciation of the possible use that can be made of the enormous quantities of culm which have already accumulated in the coal regions and which are constantly being added of figuring out the value of the ore on the to year after year. Of recent publications bearing on the matter, the report of the Scranton (Pa.) Board of Trade, issued a short time ago will be found specially interesting. It is devoted mainly to a consideration of the manufacture of water-gas fuel from these extensive deposits of anthracite slack, and supplies facts and figures which, though suggesting the desirability of further confirmation, should not be passed over lightly. The principal question to be disposed of in using artificial gas as a beating agent has always been that of cost, and, while there has been little doubt that it could be answered to the entire satisfaction of all prospective users, definite figures have always been given only with a good deal of hesitation. In the report before us, however, the matter is approached boldly and is treated in a manner which must satisfy even the most enthusiastic supporter of any artificial gas fuel proj-

are some of a different tenor. The newspaper mentioned carefully avoids even that, statement that from 50,000 to 100,000 cubic and reaches the conclusion that the evidence completely upsets the conclusions reached by Robert P. Porter in his trips through the statement that from 50,000 to 100,000 cubic gratefully do, that when his personal support the bottom plating was exposed, those of and personal credit meant nearly everything to this company they were never asked in vain or found wanting in any emergency.

We think it propose also to record, as we gratefully do, that when his personal support the bottom plating was exposed, those of the conclusions reached by production as follows:

One ton of waste at producer Labor handling same per ton...... Expenses of plant per ton.....

100,000 cubic feet..... In other words, then, taking the maximum gas capacity of a ton of coal, the cost of the cubic feet. With an estimated volume of waste output of 2,000,000 tons per annum all the possible shortcomings of the culm as be profitably turned to account in this way. Using it directly under boilers for steam raising has been tried in different places with varying success, but, undoubtedly, not with that degree of satisfaction which its previous conversion into a more convenient and easily-managed form would have entailed. Any effort, therefore, which is made to develop the methods of water-gas fuel manufacture with coal slack as a raw material should meet with hearty encouragement. Progress is constantly being made, and, while we do not share to the fullest extent the sanguine expectations set forth in the report to which we have alluded, a comparatively satisfactory solution of the problem should not be beyond early attainment.

The Duty on Foreign Iron Ore

To the Editor of The Iron Age .- DEAR Sin: You have an article in your issue of October 7 on the subject of an appeal now before Acting Secretary Fairchild, with regard to the method of levying duty on imported iron ore. You state in that article that the Bethlehem Iron Company and Pennsylvania Steel Company are interested in the decision as importers of iron ore from their mines in Cuba. They are not inter-ested in this matter in the slightest degree, although they are interested in the mines in Cuba, because the average per cent. of moisture in the Cuban ore does not exceed 1/2 of I per cent., and therefore its effect

upon the duty is inappreciable.
You state that in this country iron ore is bought and sold by the ton, gross weight, moisture and all, the agreements generally specifying the given minimum or range of metallic iron. If you will take the trouble to analyze this statement you will find that the moisture in this instance is taken off the analysis, while in the foreign ore the moisture is taken off the weight—the very same identical thing, only expressed by another name. If you will kindly figure for your-self a little invoice on 100 tons of 50 per cent. iron ore at 10 cents a unit, which conains 10 per cent. of moisture, you will find that it comes to \$450, whether you take the 10 per cent. off the weight or take the 10 per cent, from the analyses. Of course you understand that any guarantee of minimum of contents of metallic iron in a native ore is based upon natural condition as received, and not the ore dried at 212°. In other words, the American miner takes the moisture off the weight, only he does not know he is doing it, because he calls it by another name. Yours truly, ALFRED EARNSHAW.

The point at issue in the question raised concerning the definition of what a ton of iron ore is understood to be in this country is not what the buyer pays for it. Mr. Earnshaw puts the difference tersely when he says that the moisture is taken off the analysis in dealings in domestic ore, while it is taken off the weight in the purchase and sale of foreign ore. The point which is to be decided in the case pending before the Acting Treasurer is whether the duty is to be levied on the gross weight as received, thus accepting as the definition of what "a ton of iron ore" is that based upon common usage in this country, or whether the duty is to be levied upon the gross weight, deducting moisture. The latter is claimed by lect. the importers because they happen to figure the selfing value of an iron in a somewhat different manner than is general in this country. That both methods of getting at the value of the iron lead to the identical cay. the value of the iron lead to the identical cay. From this it would appear that an result is so plain that we did not think it iron or steel ship, although not liable to necessary to allude to the matter, nor did we believe it possible that our readers could order, renewed attention has been given to have any doubts on that point or construe our remarks in that manner. Importers claim that it is unjust and ridiculous that water. The same objection might be made to paying freight on water. The issue is to decide what in the eye of the law is a ton of iron ore. We deny that a particular way part of the importers entitles them to override common usage in the trade in this country, with the object of obtaining a lower rate

> At a meeting of the Board of Directors of Berlin, Conn., the following relative to the death of Mr. Samuel C. Wilcox, president, was spread upon the minutes: "Hon. to oxidation of the several parts of iron and was spread upon the minutes: "Hon. Samuel C. Wilcox, president of this company, having died at his home in Berlin on the 21st day of September, 1886, we, the directors of the Berlin Bridge Company, place on record this testimonial of our ap-preciation of his services, our respect for his memory and our sense of loss at his death. Mr. Wilcox was for many years president of

We think it proper also to record our sense of Mr. Wilcox's worth in other capacities than his immediate connection with this \$1.80 business. As a manufacturer he was iden-\$1.80 tified with many of the leading industries of Connecticut, in the conduct of which his such as grain, &c., is almost always of an wise counsel was sought and acted upon acid character, and its effect upon the iron and his executive energies employed; as a public man his business like management of the finances of the town of Berlin when intrusted to his care was commended by men of all parties, while as a member of the General Assembly he was always alive to the best interests of his town and State; as a private citizen he was distinguished for sound judgment, strict integrity and public spirit and benevolence. Recording this testimonial with a deep sense of the loss which we and this company have sustained, we tander our automathies to the ferrille of our supportance.

The Durability of Iron and Steel Ships.

The substitution of iron for wood as a material for ship construction, says the Engineer in a recent issue, has rendered it possible not only to build ships stronger than before, but also to diminish the cost of their production and maintenance. It is fortunate for shipowners in these times of low freights that the repairs of ships due to ordinary wear and tear are not usually so considerable as for-Dry-rot and the other forms of decay which were so prolific a source of trouble and expense in the management of wood vessels, are wholly unknown in their iron and stee successors. The loosening of fastenings and other indications of straining which were so commonly exhibited by wooden ships after a few years of hard work are also experiences of the past, and so are the extensive "openings up" which were periodically re-sorted to in order to establish a vessel's claims to reclassification. The shipwright's bill no longer swallows during a few weeks the earnings of 12 months, unless it be when new decks are wanted, which is not often in the career of any ship. The dry-dock pro prietor and the painter are the tradesmen with whom the shipowner has chiefly to reckon nowadays, with an occasional job for the engineer and boiler-maker if his ves sel is propelled by steam. The necessity for new boilers is to the steamship owner an ever-existing to the steamship owner an ever-existing to the head, and wise is he who sets aside an adequate proportion of each year's earnings to pay for the boiler or boilers which will inevitably be wanted should

We are concerned at present, however, with the subject of the durability of the hulls of iron and steel ships, apart from that of the machinery; and although depreciation is ever taking place as the age of a vessel increases, yet, with the exercise of due care, the actual deterioration per annum in the strength and quality of the material in an iron or steel ship may, as many shipowners are aware, be reduced to a very small sum indeed. Wood decks will inevitably wear thin, and wood ceilings become defective but the iron and steel parts of the vessel, if properly attended to, will require little or no expenditure, except for cleaning and painting, during many years. Oxidation is, in fact, the only source of deterioration which has to be provided against; and if oxidation could be entirely prevented, there does not seem to be any reason why an iron or steel ship should decay at all. It become therefore, an important question to ascertain to what extent the tendency of iron and steel to combine with oxygen may be checked, and in what way that result may The experience obtained be best attained. with existing iron ships is only of a partial

and relative character.

There are vessels still in existence which were built of iron 30 to 40 years ago, but in comparing the condition of some of these with that of wooden vessels of the same one is not very favorably impressed with the durable qualities of the former material. But this is due to ignorance regarding the oxidizing tendencies of iron on the part of those who first owned these vessels, or, if not wholly to ignorance, then certainly to neg-lect. One fact is very clear. The iron vessels that have been best cared for are in the best condition, and those which ports of discharge have been neglected are worse than any wooden vessels would be that had not been attacked with dry-rot or other form of deserious wasting in the early years of its existence, may yet, if oxidation be permitted to go on, prove to be less durable than a wooden ship. The quality of dura-bility—with which that of maintained strength and seaworthiness is, of course, intimately associated—is therefore not inherent to iron and steel ships, except during a comparatively early part of their exist-ence, before the results of oxidation can become very considerable. If the proper precautionary measures for preventing or arresting oxidation are neglected, there is no reason why an iron ship should last any longer in a serviceable condition than a wooden one. Experience with existing iron vessels, built from 25 to 40 years ago, tends corroborate these deductions, for some of them are almost as strong and sound as when first built, while others are reduced to the Berlin Iron Bridge Company, of East the thickness, and therefore strength, of a

steel ships, and what does experience teach in regard to the best measures for preventing or arresting these tendencies? For many years after vessels were first built of preciation of his services, our respect for his memory and our sense of loss at his death.

Mr. Wilcox was for many years president of this company. In that position his labors were distinguished by ability and fidelity; his devotion to his duties was untiring, and our recognition of the obligations of this company would fall short of what the truth

is a continual wash of bilge drainag with every movement of the vessel. This fluid, which consists of condensed moisture from the cargo mixed with drainage from the latter and decomposed organic matter, or steel with which it is in contact is often supplemented by the mechanical action of gravel, pieces of wood or nut and screw bolts which have been negligently permitted to get into the limbers. Hence it was very soon found that the inner surface of the bottom plating, to as high as the turn of the bilge must be protected from the action of such influences as these, and at first a coating of pitch was employed for the purpose. phalt was next tried, but by common consent we and this company have sustained, we tender our sympathies to the family of our late associate and direct the secretary to forward them a copy of these resolutions.

Portland cement was ultimately adopted as the best perservative of this part of the vessel. There is still, however, a lack of agreement in regard to the paints and compositions best suited for preventing fouling and corrosion on the outer surface. Some shipowners pin their faith to one specific and some to another, but so far it is very doubtful whether any-thing yet tried can be depended upon to keep a ship's bottom fairly clean during 12 months.

Corrosion has, however, been reduced to a minimum at this part of a vessel, so that it is not unusual to find the bottom of a ship when about 12 years of age completely cov-ered with an enamel-like coating, formed with the many layers of paint which have been applied during that time. But all ships are not alike in this respect, the recently added paint in many cases being merely a covering to a thick incrustation of rust, and sometimes even of cavernous ac-cumulations of rust and water, the presence of which can be discovered only by the aid of a chipping hammer. Unless oxidation is thoroughly removed from iron or steel plating, and the surface is quite dry, it is of no use to apply paint or any composition for preventing corrosion. By bearing this in mind and acting upon it the bottom of an iron or steel ship may prove the most durable part of her. Indeed, upon drilling holes ble part of her. at different parts of the plating of old iron ships it is commonly found that the loss of substance in the bottom is much less than at the top sides, and very often no depreciation at all in thickness can be discovered between the upper part of the bilges and the keel.

In a properly cemented and frequently coated iron or steel ship there will be little

or no danger of the outer plating wasting by corrosion on its outside surface, except in the region of the water line, and even at his vessel be fortunate enough to keep afloat that part the tendency may be minimized until the old ones are worn out. ing each voyage and painting the surface. It is upon the inside surface of the plating, above the hight to which cement is laid, that the waste by corrosion chiefly takes place, and it is the top sides of an old fron ship that first come under serious repair and enewal. That the tendency to corrosion should be very considerable at that part is obvious when we consider the influences to which it is exposed. The moisture which evaporates from most cargoes condenses first upon the iron skin, which is kept cool by the sea, and thence it trickles into the limbers. This moisture at once attacks any exposed surface of iron, and vields to the latter a large portion of its oxygen. If the surface is painted the water is unable to do mischief, nor will corrosion take place so long as the paint endures. But in the course of time moisture gets between the paint and the iron, rust is formed, the paint is thrown off, and conditions are set up that are calculated to speedily depreciate the substance of the plating un-less they are arrested. When the ship arrives in port and the cargo is discharged this per ton to keep in good order than was formatter should be at once looked to, and if merly the case. That the average life of a cleaning and repainting are found to be ship should be less than it was under prenecessary they should be carried out at once. But in these days of hurry and rush one being put in, and thus ships are often kept run- have been increased. Probably the greater ning for years without a brush of paint being applied to the inside surface of the side plating. When the paint is put on too otten it is laid upon the rust, and so might just as well have been kept in the paint store. Sailing ties. But the ships themselves are stronger ships are usually better attended to in this and the conditions relating to their maintenance are more favorable than was the case not being given such quick dispatch at the in the days of our wooden walls. The delays to which sailing ships are liable, according to the practices which prevail at most ports at home and abroad, are very often advantageously utilized in cleaning the inner surface of the plating, and for this reason more than for any other, it will probably be found in a few years hence that the life of an iron or steel sailing ship which escapes the perils of the seas is very much longer than that of a steamer. So far as opportu-nity for comparison has been afforded, the evidence altogether points in that direction. But steamers are exposed to sources of de

terioration from which sailing ships must necessarily be exempt. Inaccessibility is one of these, and it applies particularly to the neighborhood of the machinery and to the interior of ballast tanks and cellular bottoms. It is practically impossible to give that attention which is needed to the portion of the hull below the working parts of the machinery, and in most vessels it is difficult to look after the framing below the boilers. The renewal of boilers is always attended with the necessity for repairs to the boiler seatings and the adjacent framework of the But such wear and tear is local in course examined at all periodical inspections, but corrosion of the floors and longi tudiral girders cannot be prevented, seein iron it was supposed that the chief wear and that the double bottom space is frequently

a serious sort of mischief; but it may be minimized, and indeed reduced to ver proportions, by frequent cleaning and painting, taking care never to apply the paint to either a damp or rusty surface. Whenever a steamer reaches a home port after a foreign voyage of several months' duration the state of the bunkers should be examined, and, if necessary, the remainder of the coals should be removed in order that th work may be properly dealt with. Having referred to the machinery spaces, bunkers, double and cellular bottoms, and the results of quick dispatch, there appears to be nothing left to distinguish the cases of steamers from those of sailing ships, so far as regards the tendencies to decay and the precautions to be taken in order to make them durable.

Both sailing ships and steamers have at times iron or steel decks, upon which no wood flat is laid, but such an arrangement is wood hat is laid, but such an arrangement is much more frequently met with in the latter than in the former. It is to be feared that iron and steel decks will prove a source of trouble in consequence of their rapid corrosion, which nothing tried up to the present time has been able to arrest. It will easily be understood that the frequent breaking of salt-water arrangement is such as a range much the frequent breaking of salt-water arrangement is much such as a range much such as a salt-water spray upon the surface of an iron or steel plate should cause it to corrode, but the wear and tear of deck plating is found to be much more rapid than that of the outer surface of topside plating exposed to similar conditions. The strength of many similar conditions. The strength of many iron and steel ships is largely dependent upon the efficiency of their iron or steel decks, so that by and by the condition of those decks will become a serious question to shipowners and ship surveyors. The first use of iron decks was of too recent a date to enable an estimate to be yet made of their ultimate durability, but the thick incrustations of rust commonly found on the iron decks of steamers which were built only four or five years ago point to a speedy reduction in their substance.

One valuable fact in relation to the durability of iron and steel ships has for some years past been well understood by most shipowners, viz., the necessity for avoiding all wood or other linings on the inside surface of these ships above the cement level. Even in poops and forecastles all coverings to the frames and plating should be avoided. Nowhere does corrosion proceed at a more rapid rate than behind linings where moist-ure can collect without a sufficient current of air to evaporate it. Exposure, accessibility and frequent cleaning and painting are necessary for the preservation of iron and steel surfaces. Whenever a surface of iron cannot be got at, as in the case of iron deck plating, stringers, tie plates, &c., below a wood deck, moisture must be carefully excluded, and this can be done only by properly attending to the calking. If the woodwork is carefully fitted in the first instance, and bedded upon thick red-lead paint, also if the bolts be tightly driven and their nuts screwed upon grummets and washers, then, by keeping the deck seams tight, the durability of

the deck plating may be insured.

A well-built and carefully kept iron or steel sailing ship should be practically in-destructible so far as decay and wear and tear are concerned, and the life of a steamer is of less duration only in so far as regards the parts to which especial allusion has been made. Whether or not it will commercially pay a shipowner to take such care of his vessels, bearing in mind the risks of ocean navigation to which all ships alike are exposed, is, of course, another matter, but that the use of iron and steel has made it possible to own shipping at less cost for formerly there fact has been a maintenance than formerlbe no doubt. This fact considerable factor in reducing the cost of ocean freightage, and therefore in bringing produce at a cheaper rate to the consumer. It has, moreover, tended to augment our national wealth, inasmuch as a ship costs less per ton to build and less existing conditions shows either that less care is now exercised in their navigation or cargo is scarcely out before another one is that the inevitable risks of ocean navigation number of ships traversing the seas and the hurry and drive which characterize their When the paint is put on too often it is movements have a great deal to do in increasing the proportion of shipping casual-ties. But the ships themselves are stronger

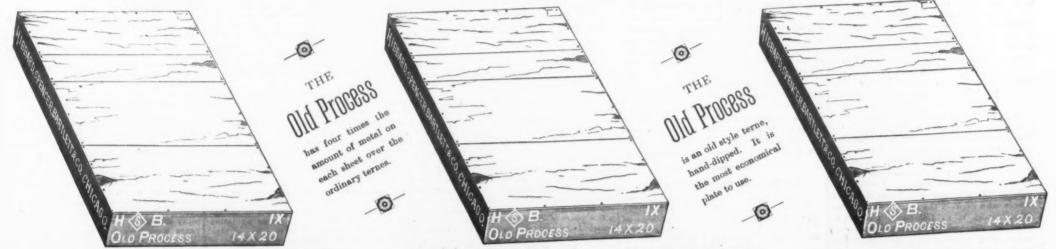
A few of the striking employees of Henry Disaton & Sons answered the invitation issued by the firm last week and returned to work on Monday morning. At the office it was stated that 15 or 20 of the old hands had made application for work, and had been taken back. To those who failed to make application at the office the following notice, signed by the firm, was issued and posted in conspicuous place outside the gate : of our hands who failed to report to-day must make personal application for work if they wish to resume, as we cannot employ all of those who quit our service." The Arbitration Board of the strikers visited the Executive Board of District Assembly No. 1 at their headquarters, No. 806 Girard avenue, and communicated the decision of the men to accept the firm's proposition to settle the matter by means of an investigation of he wage lists paid in other similar establishments. The strikers will choose a man from the steel-melting department and another from the rolling mill, who, in company with a representative of the firm, will visit steel mills in different sections of the counits character, and may be made good at a comparatively small cost. The interiors of ballast tanks and cellular bottoms are of

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One Foot-Power Screw-Cutting Lathe.
One Profiling or Edging Machine.
1 6 ft. Shaping Machine.
1 Double-acting Fower Press.
One 2-spindle Pratt & Whitney Drill.
One 4-Spindle Garvin Drill.
One small Drop Press, with Power Lift.
Send for List of Second hand Tools.

New York Machinery Depot,

Bridge Store No. 16, on Frankfort St.,

A CHEMIST and Metallurgist having for four years had charge of laboratories of Iron and Steel is open for engagement. Address
"ENGAGEMENT,"
Office of The Iron Age, 77 4th Avenue, Pittsburgh, Pa.

WE buy all kinds of Iron and Steel Scrap, Burnt Iron, Old Rails and Cast Borings (in carloads only). Write us, naming quantity and price. ROBINSON & ORR,

115 Water St., Pittsburgh, Pa. (ESTABLISHED 1859.)

PURCHASING BUREAU.

A gentleman of long experience in the Hard ware business is about opening a purchasing bureau in this city for out-of-town buyers. For prospectus, terms &c., address "HARDWARE BUREAU," Box 165,

Office of The Iron Age, 66 and 68 Duane St., N. Y.

Wanted,

Rolling-Mill Superintendent who has had experience in working Soft Steel and Iron, including Sheets and Plates and all that is done in a mer A PORTION of our works were destroyed by Sheets and Plates and all that is done in a mer one to of Radiators, chant mill. State age, and must have good refer-

Office of The Iron Age, 66 and 68 Duane St., N. Y.

OFFICES TO LET, 9 CHAMBERS ST.

Apply to GEORGE W. BRUCE, on premises.

Wanted,

to buy Malleable Scrap in large or small quantities. Address, with price, &c.

THOMPSON C. GILL & CO.,

210 S. Third Street, Philadelphia, Pa. W ANTED, a situation as Fireman, by, an experienced Foundryman of 25 years' service as such; desires to make a change of locality, Please communicate

COUNDRYMAN, Please communicate**

SOUNDRYMAN, South Fifth Street, Reading, Pa.**

For Sale.

One half interest in an established Hardware business in one of the best towns in North Alabama, or, if preferred, the entire business can be bought. Satisfactory reason for selling.

Address "R,"

Office of The Iron Age, 66 and 68 Duane St., N. Y.

W ANTED.—A Machine Foreman with experience managing men and shop manufacturing special and interchangeable machinery seeks like position. First-class reference. Address "ENGINEER," Box 45, Ridley Park, Pa

SPECIAL RYE MIXED FOUNDRY FLOUR.

\$2.00 a barrel, in strong jute sacks.

CASSIUS M. PAINE & BRO., Merchant Millers.

Milwaukee, Wisconsin.

Special Notices.

Machinery, New and Second Hand.

LATHES. LATHES.

One 17 in. x 6 ft Forsaith Engine Lathe, second hand.
One 18 in. x 12 ft.
One 18 in. x 6 ft. Fitseld Engine Lathe, second hand.
One 26 in. x 6 ft.
Five No. 3 Plain L., D. & Co. Hand Speed Lathes, new.
One 26 in. x 16 in.
Five 13 in. x 5 ft.

"Turret Lathes,
Three No. 1
Four 15 in.
Four 15 in.
Four 15 in.
Fox Monitor Lathes, new.
Fox Monitor Lathes, new. Four 15 in.

Four

PLANERS. One 22 x 22 x 6 Powell Planer, (good as new) 2d hand One 30 x 30 x 8 Pond "" One 24 x 24 x 6 in. "Wood & Light" Planer, second

One 24 x 24 x 5 Whitcomb "second hand. One 20 x 26 x 5 Whitcomb "second hand. One 20 x 26 x 4 ft. 6 in. Putnam Planer, "DRILLS. BRILLS.

Six 24 in. Bickford Drills, new.
One 24 in. Bickford Drills, second-hand.
One 20 in. L., D. & Co. Lever Drill, second hand
Six 20 in. L., D. & Co. Lever Drills, new.
Three 28 in. Bickford B. G. S. F. Drills, "
Three 83 in.

MISCELLANEOUS. Two Grant & Rogert Universal Millers, new. Two Small Valve Millers, new. One Sellers' Car-Wheel Borer, second hand. One 20 in. Steptoe Shaper, Second hand. EFF See Adv't, Page 47.

LODGE, DAVIS & CO., Manufacturers and Dealers, CINCINNATI, O.

Receiver's Sale. Public Auction.

VALUABLE MANUFACTURING PROPERTY. The real estate and eighteen buildings thereon, containing boilers, engines, shafting, machinery, tin and metal ware, presses, dies and appliances, late the property of

THE JOHN D. LOCKE COMPANY, Limited, and which cannot be reproduced at this time for less

and which cannot be reproduced at this time for les than \$150,000, will be offered for sale at public auc FRIDAY, NOVEMBER 5th.

AT 12, NOON, on the factory premises at WHITESTONE, LONG ISLAND. "INTACT AND AS A WHOLE,"

"INTACT AND AS A WHOLE."

at a bid of not less than \$40,000. This amount is not named by the Court as a valuation of the property, but only as a minimum bid for same, and no sale will be made unless a bid to that amount is received. The property has been used for a series of years as a Tin and Metall Ware Manufacturing Establishment, and, although now fully equipped for an immediate renewal of such a business, it may be easily converted by a curchaser to any manufacturing purpose, by the removal of the presses heretofore in use, and leaving that the ments. Premises now oney for inspection.

Artachments,
Premises now open for inspection.
Terms: 5 per cent. and auctioneer's fee on sale
balance in 30 days.

JAMES W. COVERT, Receiver.
Porter & Kilvert, Receiver's Attorneys, Tribune
Building, New York.

Ore Crusher Wanted.

Second-hand Ore Crusher wanted for pulveriz ing ore for puddling furnace fix. Name makers and lowest price. BELLEFONTE IRON AND NAIL CO., Limited,

EUGENE BISSELL, Auctioneer

HAYDOCK & BISSELL, Successors to ROBERT R. HAYDOCK & Co., and E. BISSELL & Co., WHOLESALE HARDWARE AUCTIONEERS,

19 Murray St. and 15 Park Place, N. Y. Sales held weekly for the trade. Consignments solic ited. We refer to the leading manufacturers and im-porters.

Western Agency Wanted at St. Louis, Mo.,

for one or more lines of goods to represent in Western Territory, by a party of high standing, ability and large acquaintance. Past experience associated with Hardware and kindred lines. The best qualifications furnished, and nothing but a first-class arrangement entertained. Moderate capital invested if to advantage. Address.

"AGENT." Room 29, Gay Building,
Third and Fine Streets, St. Louis, Mo.

Of Interest to Iron Men.

A company owning large and valuable Coal and Iron property, located upon leading railroad lines in East Tennessee, is desirous of negotating with capitalists who are contemplating the construction of Iron works, with a view to the location of such works on its property. It is confidently believed that such parties can be afforded a more advantageous opportunity for investment than can be found elsewhere in the United States. Address E. B. CHAPMAN.

be in shape to fill all orders in about ten days, and CHARLES LATIMER, Engineer of Company, Oct. 181, 1886, Cleveland, Ohio. can at present execute orders for leading sizes from our warerooms. We expect to disappoint no one who shall favor us with their spring orders.

T. ROWLAND'S SONS.,

12 N. FIFTH ST., PHILADELPHIA.

Wanted,

a first-class business man with \$5000 to \$10,000 capital, to assist in organizing and to take charge of the business affairs of a stock company in a live and growing Western city. The business is that of a Foundry and Machine Shop, now conducted by a firm and doing a good business in specialties. Satisfactory reason given for making the change proposed.

Address H. F. BASSETT, Taunton Mass.

THE Subscriber, who has had over 20 years' experi-ence in Heavy and Shelf Hardware, now wants a position with a house in above lines, where experi-ence and ability will eventually be appreciated. Address E. P. HOUSE Surfuefield. III. E. P. HOUSE, Springfield, Ill,

For Rent.

The Hamburg Rolling Mill, at Hamburg, Berks County, Pa., on line of the Philadelphia and Reading R. R. Contains three double and two single pudaling furnaces and four heating furnaces. Well-equipped for the manufacture of Muck Bar. Bar Iron and Hoop Iron. Attached to the property are 6 tenant houses and 7 acres of land. For terms apply to J. H. LOOMIS, Real Estate Agent, 227 South 4th St. Philadelphia, or W. E. C. COXE, Supt. Rolling Mills, Reading, Pa.

WANTED TO BUY FOR CASH an extra large Scrap Shears for shearing steel Rais, heavy Railroad Scrap and 16-in. or 18-in. Tops and Bottoms. Address MITCHELL, TRANTER& CO., Cincinnati, Ohio.

P. J. CONROY & CO., 1895 Catharine Street, Philadelphia.

Special Notices.

Second-hand Machinery in Good Order. For Sale Cheap. MACHINERY, SECOND-HAND AND NEW, ON HAND

o Foot Presses, assorted.
Power
Public Power

Suspension Drill. Screw Presses. Rogers Wood Planer, 24 in. x 5 in. Valve Miller.

1 Valve Miller.
1 Bolt Cutter, with Taps, Dies and Hobs, ½-inch to sinch, incl. Wm. Seliers & Co.
Also full line of New Machinery.
New York Agency TAYLOR MFG. CO., Engines,
Bollers, &c. Correspondence solicited.
PRENTISS TOOL AND SUPPLY CO.,
P. O. Box 3362.
No. 42 Dey St., New York City.

For Sale.

Foundry, 200 X 40 ft. and Machine Shop 60 X 20 Foundry, 100 X 40 ft, and Machine Shop 60 X 20 IRON AND STEEL SCRAP ft., both with water privilege; also Japan and Packing House 62 x 22, Stove Storehouse 50 x 14 and Storehouse and Box Shop 30 x 20. All in good repair and running order; five minutes from steamboat and ten minutes from two railroad stations. Address

WILLIAM KEIGHLEY'S EST ..

Middle Haddam, Conn.

Large lot second hand Iron Tanks, all sizes and shapes, from 5.00 gals. down, and lot new 100 gal. Oil Tanks with pumps, all complete. Patterns for kolling Mill Shears complete. Lot of Bolier Shelis, different sizes. Cast Iron Kettles, cheap. Second hand Engines and Bollers, cheap. Wrought and Cast Scrap, Red and Yellow Brass, Copper, Lead and Zinc. BUSSENIUS, CUNLIFFE & Co., Dealers in Scrap Iron and Oil Motals. Dealers in Scrap Iron and Old Metals 12th and Washington Ave., Philadelphia

FOR SALE.

BAKER BLOWERS, Nos. 4 and 5.
ROOT BLOWERS, Nos. 1, 2, 4, 5 and 7.
SIURTEVANT do., Nos. 3, 4, 6, 7, 8 and 9.
RIDER HOT AIR PUMPING ENGINE, so-inch.
GAS ENGINE, 1 Horse Power. Careful attention
given to purchasing for parties out of the city.
Correspondence solicited, C. R. BIGELOW, M. E.
45 Dey St., N. Y. City.

For Sale, Machinery.

Heavy Geared Milling Machine. New, \$450.
15 in. x 6 ft. Engine Lathe \$200.
16 in. x 9 ft. \$255.
17% in. x 9 ft. \$255.
20 in. x 8 ft. \$256.
20 in. x 8 ft. \$256.
Suspension \$256 in Back Geared Drill Press, heavy. New, \$160.
Suspension \$250.
L2-in. Crank Planer. New, \$250.
Shapers, Planers, Chucks and Tools. Prices low.
AMERICAN TOOL CO.,
Cleveland, Ohio.

FOR SALE.

To Close an Estate.

A hardware stock of \$15 000 in the best busines city in Michigan. Business established twenty-five years. Address "HARDWARE STOCK," Office of The Iron Age, 66 and 68 Duane St., New York

FOR SALE.

One Reihlé Bros. Patent Furnace Charging Sc. le.
"Fairbanks Furnace Charging Scale.
"Duplex Worthington Steam Pump 10x 12x6.
"No. 3 Knowles Steam Pump.
All in good order.

WM. FITZSIMONS, 626 Rroadway, Cleveland, Ohio

FOR SALE.

thent than can be found elsewhere in the destates. Address E. R. CHAPMAN, 26 Broad Street, New York City.

PORTION of our works were destroyed by fire on the morning of the 6th inst. We will fire on the morning of the 6th inst. We will for particulars address

Cash Advances Upon Iron.

DENNSYLVANIA WAREHOUSING AND SAFE DEPOSIT CO.,

Girard Building, 3d St., below Chestnut, Philadelphia. This Company is prepared to establish pards throughout the iron regions at small cost, and to make advances at moderate rates of interest,

F. R. PEMBERTON, President.

JOHN MASON, Jr., Treas. and Secy.

GEO. H. EARLE, Jr., Solicitor.

Directors.—Clayton French John H. Converse, John H. Catherwood, George T. Lewis, John W. Hoffman, Edmund H. McCullough, F. R. Pemberton.

OLD BRASS WANTED. We purchase for cash ald Brass, Composition

opper, and Brass Turnings.

JERSEY CITY SMELTING WORKS, 107, 109 and 111 Plymouth Street, JERSEY CITY, N J.

A YOUNG man, student of chemistry at the Massachusetts Institute of Technology, and at the University of Pennsylvania, with two years' experience in analysis at iron works, wishes a position at an iron furnace (charcoal preferred) with a view to acquire a practical knowledge of iron-making. Salary a secondary consideration.

Address "A. W. W." Address 1601 Callowbill St., Philadelphia, Pa.

Special Notices.

16 in. x 42 in. Planer. Bridgeport. New.
18 in. x 3 ft. "Wheeler. Good.
24 in. x 4 ft. "Phayer & H. Good.
24 in. x 6 ft. "Phayer & H. Good.
25 in. x 6 and 8 ft. Planers. Powell. New.
26 in. x 6 and 8 ft. Planers. Powell. New.
25 in. x 10 ft. "Pond. Nearly new.
25 in. x 10 ft. "Pond. Nearly new.
24 in. x 5 ft. Engine Lathe.
14 in. x 5 ft. Engine Lathe.
16 in. x 5 ft. "Word & Light. Good.
16 in. x 5 ft. "With taper. P. & W.
16 in. x 6 ft. "Regine Lathe.
16 in. x 6 ft. "Regine Lathe.
17 in. x 6 ft. "Regine Lathe.
18 in. x 5 ft. "Regine Lathe. Harris. Good.
19 in. x 6 ft. "Regine Lathes. Pond. Nearly new.
19 in. x 8 ft. and 10 ft. Engine Lathes. Pond. Nearly new.
20 in. x 8 ft. and 10 ft. Engine Lathes. Pond. Nearly new.
20 in. x 8 ft. and 10 ft. Engine Lathes. Harris. Belden.

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E. P. BULLARD.

14 Dey Street, N. Y.

For Sale, Car Works.

The valuable property of the Bellefonte, Pa., Car Works is offered for sale at a bargain. Two rocton Blast Furnaces being built within ½ mile of the Works, where, it is claimed, Pix Iron can be made for ten dollars per ton. A large Rolling Mill close by. Big boom just starting. Good chance for a live business firm.

BELLEFONTE CAR WORKS, Bellefonte, Pa.

Bought and Sold.

JAMES H. LOGAN, Pig Iron Commission Merchant, 93 Fourth Ave., - PITTSBURGH, PA.

SCRAP IRON.

We buy all classes of Iron and Steel Scrap Wrought Turnings, Cast Borings, Burnt Metal, &c GEO. A. McLEAN & CO., Room 28, Lewis Block, P. O. Box 455.

Pittsburgh, Pa. NOTICE.

We buy and sell all classes of Iron and Stee Scrap. Correspondence solicited. JOS. C. POULTERER & CO., 304 S. Third St., Philadelphia.

Cotton Gin Ribs.

HARDWARE MERCHANTS and others furnished with materials of all kinds for making and repairing COTTON GINS. RIBS and SAWS for repairing ALL makes of gins. Send for Price List. Address THE BROWN COT-TON GIN CO., Manufacturers of Cotton Gins, Feeders and Condensers, New London, Conn.

FOR SALE.

Few Hoisting Machines, worm geared; Three-Spindle Nut Tapper; Fox Lathe, back geared; 16, 18, 20 inch Engine Lathes; Hoop Iron Testing Machine; Smail Slotter; Planer Knife Grinder 8, 20, 12 inch Horizontal Engines, with Boilers. A. G. BROOKS,

961 North Third Street, . Philadelphia. For Sale.

A complete set of Horizontal Blowing Machinery suitable for blowing a medium-sized Blast-Furnace Engine, 22 in. x 48 in., strongly geared, 3% to 1; blast cylinders, 60 in. x 66 in. Built by R. S. New bold & Son. All in first-class order. Can be exbold & Son. All in historia.

amined on foundations. Apply to
SCHALL, STEACY & DENNEY,
York, Pa.

FOR SALE, CHEAP. One Pair 14 x 42 Wheelock Engines, with Condenser One 16 x 42 Horiz. Cortiss Engine. Four Horiz. Tubular Bollers, 80 H.-P. Four Horiz. Tubular Bollers, 80 H.-P. Four Horiz. Tubular Bollers, 50 H.-P. Four Horiz. Tubular Bollers, 50 H.-P. One Engine Latche, 21 in. swing, 8 ft. bed. Two Engine Latches, 15 in. swing, 6 ft. bed. One ilialadeli Drill; 28 in. swing. One Iron Flance, 24 x 26 x 9 ft. One Iron Flance, 24 x 24 x 6 ft. D. B. CRUICKSHANK, 243 Dyer St., Providence, R. I.

The following Second-hand Machinery is for Sale at low prices. 3 new Flue Boilers, 54 in. diam., 24 ft. long, 2 Flues, 16 in. diam., with fronts complete; 1 Pulley, 10 ft. diam., 31 in. face, 11½ bore; 1 Fly Wheel, 20 ft. diam., 8 cast and 8 wrought arms, weight about 12 tons, 12½ in. bore; 1 Fan Blower Case, 76 in. diam., 32 in. wide; 7an, 78 in. diam., 38 in. wide; 7an, 78 in. diam., 38 in. wide; 1 Rattler, 26 in. diam. 48 in. long inside. Apply to

TAUNTON COPPER MANUFACTURING CO., Taunton, Mass.

NOTICE.

Owing to our term of partnership expiring January 1st, 1887, we have decided to offer our entire Stock and Fixtures for sale. We can coavince any one that we are doing a good, profitable business. Satisfactory reasons given for selling. SMITH BROS. & CO., Delaware, Ohio,

Manager Wanted

for an Anthracite Furnace; one sufficiently familiar with chemistry to analyze his own stock and products preferred. Address, stating age, experience and references,

Office of The Iron Age, 66 and 68 Duane St., N.

Wanted, STEEL WORKS MANAGER.

A man competent to take charge of a Beaseme Steel works; only those having experience need apply. JEFFERSON IRON WORKS,

soher, independence in the perience in the per WANTE

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NEW

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Office of

LARGE POCKE

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Special Notices.

Second-hand Machinery for Sale.

Two Engine Lathes, 87 in. swing, 20 ft, 6 in. bed, Geared in Face Plate, Screw Feed, Compound Rest. One Engine Lathe, 15 in. x 6 ft.

One Cylinder Boring Lathe, 33 in. x 10 ft, bed. One Am. Tool Co. Cabinet Turret Lathe, 20 in. x 7 ft. Same as new.

One 37 X 12 Triple Geared Lathe. t ne Iron Planer, planes 24 ft. long, 62 in. x 62 in.

Excellent condition.

One Iron Planer, planes 8 ft. long, 30 in. x 30 in. Two Iron Planers, plane 6 ft. long, 24 in. wide Three Iron Planers, plane 4 ft. long, 24 in. x 24 in. Three Iron Planers, plane 5 ft. long, 20 in. x 20 in

Two Boring Mills. One Oliver Bros. & Phillips' Bolt Header.

One Four-Spindle Nut Tapper. One Small Steam Hammer.

One Putnam Machine Co.'s Planer, 36 x 36 x 12,

very heavy.
One Hydraulic Wheel Press.

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age,

One No. 3 Portable Drill. One Steam Riveting Machine.

One Slotting Machine, 6-in. stroke. Bement's make. One Profiling Machine. One Axle Lathe, for car axles.

One Durrell 7 Spindle Nut Tapper. Send for lists New and Second-hand Tools, too ong for publication. Sole Agents EDISON SHAFTING MFG. CO.

THE GEO. PLACE MACHINERY CO., 121 Chambers and 103 Reade Streets, NEW YORK.

BARGAINS.

One 26 x 42 in. Hor Engine, Goodwin Cut-off,
One 20 x 48 in. Corliss Engine.
One 14 x 16 Vertical New York Safety Engine.
One 8 H.-P. Shapley Engine and Boiler,
One 16 H.-P. Baxter Engine,
One 10 H.-P. Ligerwood Hoisting Engine,
One 28-in. swing, 16 t. bed. Engine Lathe.
One 22-in. swing, 16 t. si
One 15 in. si
One 15 in. si
One 15 in. si
One 15 in. si
One 3-Spindle Pratt & Whitney Drill.
One coin. Boring and Turning Mill.
One 2-In. Coleman Drill. New Haven.
One 12 in. N. Y. Steam Engine Co. Comp'd Planer.
One 60 H.-P. Marine Boiler.
One 60 H.-P. Vertical Boiler.
One 30 H.-P. Hor. Tubular Boiler.
One 30 H.-P. Hor. Tubular Boiler.
One 30 H.-P. Hor. Tubular Boiler.
One 30 H.-P. Port. ble Engine.

One 20 H -P.
One 30 H -P. Port ble Engine.
One 5 H -P.
One 5 H -P.
One 5 H -P.
One 5 H -P.
One 14-la. Steam Cylinder Worthing on Duplex
Pump. One 14-10. Steam Cylindry
Pump.
Write and say what you want I have a large
stock, constantly changing.
HENRY I, SNELL,

135 North 3d Street, Philadelphia

NEW TOOLS FOR SALE

We have following tools completed or nearly so:

1 26 X 12 ft. Lathe.

1 26 X 25 ft. " 1 42 X 18 ft. "

: 36 x 36 x 9 ft. Planer.

2 36 x 36 x any length of bed Planers,

: 60-inch Pulley Turning Lathe, two tools. THE

NEWARK MACHINE TOOL WORKS, EAST NEWARK, N. J.

FOR SALE.

16co lb. ¾ in. x ¾ in. Cant Hook Steel.
14co lb. 15-16 inch "
Lot left after finishing a contract. Will sell

BEECHER & PECK, New Haven, Conn.

FOR SALE.

A nearly new four-ton Steam Hammer, in first-class condition. Made by the Morgan & Williams Engineering Co. of Alliance, Ohio. Very best manufacture. Address WORCESTER STEEL WORKS. Worcester, Mass.

FOR SALE.

A large quantity of Rolled Iron Beams cheap.

ROB'T E. DANVERS,

DEALER IN Scrap Iron, Scrap Steel and Metals, Yards, 430 E. 18th St. and 513 E. 17th St.

Wanted,

from January 1st next, a live, energetic, pushing young man, not afraid of work, as Southern Traveler for an Importing House a thorough knowledge of Pocket Cutlery and Guns essential. Must be personally acquainted with the trade in the important cutles. Address, with references and particulars, which will be confidential, "IMPORTER."

Office of The Iron Age, 66 and 68 Duane St., N. Y.

BOOKS.

LARGE SIZE, 500 Pages, 6 x ol/6 in. each. \$8.00. OCKET 81Z6, 250 Pages, 4 X 7 in., each, \$4.00. Send for Circulars.

B LAMBERSON,

PORTLAND, OREGON.

ANTED, Superintendant for nail factory in ANTED, Super intendant for nail factory in the western Nail Association. Must be ber, industrious and a practical nailer, with excisence in running self-fee, ers. A man not over years of age preferred; must come well reconded. A good situation to the right man. Adsss. stating compensation expected, All FACTORY "office of The Iron Age, 66 and Duane St., New York.

W ANTED, a Sale-man w-II equainted with Western Iron Trade, hoops aspecially. One willing to sell on commission preferred.

Address. "W."
P.O. Box 33, New York City.

Special Notices.

TO THE STEEL MANUFACTURERS OF THE UNITED STATES OF AMeRICA.

United States Navy Department Washington, D. C., August 21, 1886. The attention of all steel manufacturers of the

Washington. D. C., august 21, 1886.

The attention of all steel manufacturers of the United States is hereby invited to the requirements of the Navy Department in the way of armor plates and heavy gun forgings, for the prosecution of work already authorized by Congress.

This advertisement invites all domestic manufacturers of steel to specify, in competition with each other, upon what terms they will engage to prepare for the production of and produce the forgings and armor plate required for modern ordnance and armored ships; and no bids will be considered except such as engage to produce within the United States either all the gun steel or all the armor plate (or both) specified in this advertisement; nor will any bid be accepted unless accompanied by evidence satisfactory to the Department that the bidder is in possession of, or has made actual provision for, a plant adequate for its fulfillment.

Bids are hereby invited for supplying this Department with the under mentioned material:

About 1310 tons of steel gun forgines, of which about 328 tons will be for guns of six inches caliber, yo tons for guns of eight inches caliber, and us tons for guns of eight inches caliber, and us tons for guns of eight inches and twelve inches (both inclusive).

These forgings are to be delivered rough bored and turned, and when in that state the heaviest forging which enters into the construction of a gun of each of the desired calibers will be about as follows:

-inch.

8-inch.

5 tons.

o-inch 3½ tons.
8-inch 5 tons.
10-inch 9½ tons.
10-inch 9½ tons.
11-inch 9½ tons.
12-inch 12½ tons.
All these forgings must be delivered within the following times from the closing of a contract, viz.;
For 6-inch guns, 28 within one year, and the e-mainder within 18 months.
For 8-inch guns, within two years.
For 10-inch and larger guns, within two and one-half years.

For ro-inch and larger guns, within two such half years.

Preference will be given for earlier deliveries.

Also about 4300 tons of steel armor plates, to be of the best material and manu acture, shaped accurately after patterns to fit the form of each vessel for which intended, and of such sizes as may be r. quired, varying somewhat as follows:

2) feet by 8 feet by 12 inches thick.

17% feet by 6 feet by 17 inches thick.

11½ feet by 4¼ feet by 6 inches thick.

There will also be thinner plates.

For information concerning shapes and weights of the gun forzings and armor plates, what parts must be manufactured in sets, time of delivery of each set the chemical, physical, and ballistic tests which the metal must sustain in each case, and for all other particulars, apply to the Chief of Bureau of Ordnance, Navy Department, Washington, D. C.

Bureau of Ordnance, Navy Department, washing ton, D. C.
Each bid upon armor plate must specify the time within which the bidder will engage to make delivery; and preference will be given to earliest proposed deliveries.

Proposals must be in duplicate, sealed and addressed to the Secretary of the Navy Department, washington, D. C., the envelopes endorsed "Proposals for steel gun forgings and armor."

dorsed "Proposals for steel gun forgings and armor."

They will be received at the Navy Department until 12 o'clock, m. on the 15th day of December, 1886, at which hour the opening of the bids will take place.

The right is reserved to waive defects in the form of and to reject any or all bids.

The rer cent of the contract price will be retained from the payment of each article delivered, until the contract, as far as relates to articles of that class, shall have been completed. Separate bids may be submitted for the gun steel and for the armor, if any manufacturer so desires; but bids covering both will receive preference, other things being equal.

Bids will be compared in two classes.

First. Gun forglings.

Second. Armor plate.

And the total sum for which, and the time within which, the whole of the material covered by each class will be produced and delivered, will be alone considered.

WILLIAM C. WHITNEY.

WILLIAM C. WHITNEY.
Secretary of the Navy

METALLURGICAL ENGINEERING

I am prepared to furnish

PLANS, SPECIFICATIONS and ESTIMATES

AND TO

SUPERINTEND THE CONSTRUCTION OF ROLL ING MILLS AND MACHINERY, RE-GENERATIVE GAS FURNACES,

TUBE AND PIPE MILLS. EIC., ETC.

I represent the latest improvements in all the above branches.

M. V. SMITH, Metallurgical Engineer, Rooms 16, 17, and 18 Bissell Block. Pittsburgh, Pa.

For Sale.

The property and works of the Steel Company of Canada (I.d.), in Liquidation, situate at Acadia Mines, 'ounty of Colchester, Province of Nova Scotis, Dominion of Canada.

The property extends to about 33,000 acres, well timbered.

well timbered.
There are two Coke Blast Furnaces, weekly capacity 400 tons: Coke Ovens; Rolling Mill, capacity 200 tons per week; Wheel and general Foundry, capacity 200 wheels per day.
The Mines are fully devel ped and in first class working order, and the works are now in operation.

working order, and the works are now in operation.

The Dominion Parliament has granted a bounty on all Pig Iron manufactured in the Dominion of \$1.6: per ton of \$240 lbs. for three years from 1st of July instant, and \$1.12 per ton of \$240 lbs. for three years from 1st of July, 1889.

Also the Chignetto Coal property belonging to the Estate of the Steel Co. of Canada (1d.), in Liquidation, situate in Cumberland County, Nova Scotia, consisting o' a mining area of four square miles, and upwards of 1000 acres of well timbered land, held in freehold.

The Mine is thoroughly equipped with all the appliances necessary for an output of 400 tons per day, and is situated within two miles of the main line of the Intercolonial Railway, with which it is connected by a branch belonging to the property. All in first-rate order.

Application may be made to

A. T. PATERSON,

P. O. Box 2002.

Montreal, Canada,

FOR SALE-BOILERS AND ENGINES.

Two 48 in, x 30 ft. Pouble Flue Boilers, with Drums, Fire Fronts, Valves, &c, complete, in good order and certified for 100 ibs. steam by American Steam Boiler Insurance Co; con be run separately or together. Also one Double Vertical ingine, 16 x 24 is. Cylinders, or can be made into two single engines; this engine is of the best construction and workmanship, is complete with Governor, &c. All the above will be sold very low.

MACKINTOSH, HEMPHILL & C?. Ltd., Pittsburgh, Pa.

P. O. Box 33, New York City.

NOTICES.

Large Buyers of Shafting are requested to send specification for special prices.

MERWIN MCKAIG, Cumberland, Md.

Special Notices.

For Sale.

For Sale.

The entire plant of the Melone Sewing Machine Company, consisting in part of a factory building of brick, 133 x 33 feet, three stories, with engine, boiler, and Japanning and drop-forging and blacksmith rooms, all brick, containing one Reynolds-Corliss 75-horse-power engine, one Babcock & Wilcox boiler, Edison electric-light plant, steam-heating pipes, &c; with the building, 83 x 237 feet of ground fronting on Main street and one house and lot on Second street; also four houses and lots and three vacant lots adjoining. This property is adjoining the depois of the C. W. fi. and S. V. R. R., and very desirable for manufacturing purposes. Also the following machinery \$5 x 44. Blaisdel engine lathes.

The 13-m. Ames engine lathes.

The 13-m. Ames engine lathes.

Seven Garvin wer millers.

Seven Garvin wer millers.

Tour Garvin No. 2 millers.

Two Garvin No. 2 millers.

Two Garvin No. 2 millers.

One New Haven planer 3-ft. bed

Seven Garvin power miliers.
Four Garvin No. 3 miliers.
Two Garvin No. 2 miliers.
Two Garvin No. 2 miliers.
One New Haven planer, 3-ft. bed.
Two Merrill Bros. 4-0-lb. drop hammers,
One Bradley & Co. heater.
One heater.
One heater.
One Dower back gear punch.
One No. 3 Stilies & Parker punch.
One No. 3 Stilies & Parker punch.
One No. 3 Stilies & Parker punch.
One One Mo. 3 Stilies & Parker punch.
One Odd edging machine.
One Warner & Swasey race cutting machine touble).

One Warner & Swasey race cutting mouble, one Jones & Lamson No. 4 screw machine, with Ire feed and adjustable chuck. One Pratt & Whitney small screw machine, with ree feed and adjustable chuck. One Pratt & Whitney small screw machine, with ree feed and adjustable chuck. One Gart & Whitney large screw machine, with ire feed and adjustable chuck. One Garvin screw-head finishing machine. One Jones & Lamsen No. 3 screw machine. One Fratt & Whitney balance wheel turning lachine.

one Fratt & whitney balance wheel turns bachine.
Two small emery grinders,
Two small polishing heads,
One Pratt & Whitney die-sinking machine.
One tunnel-head for above lathe.
One tunnel-head for above lathe.
One Garvin tapping machine.
Three No. 3 six-pindle drill press—Garvin.
One No. 4 four-spindle drill press—Garvin.
One No. 3 three-spindle drill press—Garvin.
One No. 5 three-spindle drill press—Garvin.
One No. 2 three-spindle drill press—Garvin.
One No. 1 two-spindle drill press—Garvin.
One one-spindle drill press—Garvin.One one-spindle drill press—Garvin-15-in, table an ever feed.

one No. 1 two-spindle drill press—Garvin.
One one-spindle drill press—Garvin—15-in. table and
lever feed.
Two Tanite grinders, with counter-shaft.
One Garvin No. 2 Universal miller.
One Bendey 12-in. shaper.
One Brown & Sharpe surface grinder.
One planer center.
One Garvin cutter grinder.
One Garvin cutter grinder.
One Grant & Bogart 14-in. engine lathe, with taper
attachment, 8 ft. bed.
Sixteen power milling machine vises.
Four milling machine vises for No. 3 M.
Two milling machine vises for No. 3 M.
Two milling machine vises for No. 2 M.
Two hundred and fifty feet 2 S-16 shafting; twenty
dijustable post hangers; about one hundred and
wenty split pulleys; a lot of sewing machines
inished. reenty split pulleys; and on or address for further particulars call on or address For further particulars Chillicothe, Obio Chillicothe, Obio

SPECIAL NOTICE TO MANUFACTURERS.

THE CALUMET & CHICAGO CANAL & DOCK CO.,

The largest land owners at SOUTH CHICAGO and in the Calumet Region, offer on liberal terms

SITES FOR FACTORIES,

Lots or acre property on river and railroad, con necting with the B. & O., Chicago & Atlantic Chicago & E. Illinois, Chicago, R. I. & P., Chicago & W. Indiana, and Belt Line, Ill. Cent., L. S. & Mich. So., L., N. Albany & Chicago, Mich. Cent., N. Y., Chicago & St. Louis and P., Ft. W. & Chicago Railroads. Number of passenger trains to and from Chicago to South Chicago daily is about 75 each way.

Also Docks on Calumet River, with its splendid aarbor at South Chicago, and the only river property connecting with the Belt Line, which also connects with every R. R. entering Chicago.

Towage One-Half Chicago Rates. Capital invested at this point alone, \$9,000,000.00 In buildings and plants, - 4,100,000.00 Value of product last year, -9,000,000,00

Lumber received last year, - 105,000,000 Ft. Lumber reteived last year, 105,000,000 Ft.

Among the many large establishments already iocated are the North Chicago Rolling Mill Co.*s Bessemer Steel Rail Mill, the Calumet Iron and Steel Co.*s Rolling Mill and Nail Manufactory. The Morden Frog and Crossing Works, Chicago Forge and Bolt Works. &c. &c.

MANUFACTURERS, or shippers of COAL, PIG IRON, IRON ORE LUMBER, ETC. also parties who wish to build GRAIN ELE-VATORS wi please correspond with us.

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BONUSES.

The town of Ingersoli, Ontario, is prepared to offer Bonuses to the extent of \$40,000 for estab lishing manufacturing industries within the corporation. Address

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FOUNDRY AND MACHINE WORKS FOR SALE AT

FOUNDRY AND MACHINE WORKS FOR SALE AT STAUNTON, VA.

Owing to the death of the senior member of the recent firm, this establishment is to be sold. The works occupy valuable real estate, and could be removed to creaper locality. There is a speculation in the real estate. Machinery sold separate if desired. An inspection of the place solicited. Address FRANK C. BEALL, EXECUTOR, Frostburg, Md.

We buy all kinds of Iron and Steel Scrap.
Write to us when you have any to sell.
SITES, WHEELER & CO.,
222 and 224 So. Third Street,
Philadelphia, Pa.

Trade Report.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.] LONDON, WEDNESDAY, October 13, 1886. Scotch Pig.-There is no change in the

market, and we quote prices same as last week, viz. : oltness, alongside, Glasgow. Langloan, Gartsherrie, Summerlee, Carnbroe,

Glegarnock, "Ardrossan... Eglinton, "Dalmellington," at Leith... Carriage from Ardrossan to Glasgow is 1/2 ton. Cleveland Pig.-The market is steadier

and quotations are advanced 1/ @ 1/6, as follows: No. 2 No. 8 No. 4 Forge... ...81 @ 31/

Bessemer Pig. -The market is a little steadier, with no change in quotations, which remain as follows: W. C. Hematites, 42/ for mixed lots, Nos. 1, 2 and 3, equal portions, f.o.b. shipping ports. Manufactured Iron.-The market re

mains firm at prices quoted for some time past, viz. :

Steel Rails .- There is no change in the ondition of this market, and prices remain the same, viz. : Ordinary sections, £3. 12/6 @ £3. 17/6, f.o.b. shipping ports.

Old Rails.—The market is unchanged ast week's quotations still rule, viz. : Old D.H.'s, c.i.f. New York, 58/6 @ 59/.

Scrap.—There is no change to note in the Scrap market. Heavy Wrought, 50; Bessemer Crop Ends, run of mill, 54/ @ 56/, c.i.f. New York. Copper.-The market is quiet. We re-

vise quotations on Chili Bars, £41. 10/ @ £42, and Best Selected £46 @ £47. Tin.—The Tin market is unsettled. Prices are now quoted as follows: Straits, spot, £101 @ £101. 15/; futures, £101. 15/ @

Tin Plates.—The market continues firm at last week's quotations, viz. :

£102. 5/

Speller .- The market is firmer, but we

annot make any change in quotations. Ordinary at shipping ports, £13. 15/@ £14. Freights.-Steam from Glasgow to New York, 6/@ 7/6.

Financial.

Office of The Iron Age, WEDNESDAY EVENING, October 13, 1886,

The business aspect as a whole continues satisfactory, although labor troubles are coming into more prominence and several bad features are caused by speculation. Lower prices for grain, cotton and provisions, while bearing hard on the producing interests, are construed as promising a large export trade and a more active movement in the various channels of transportation, lake, canal and rail, also as favorably affecting the balance in foreign trade. Combinations to control production and prices regardless of the law of supply and demand or statistical position are directing attention to points of law which they seemingly antagonize. Despite various hindrances and discouragements the current of trade flows in gradually increasing volume. The clearinghouse exchanges of 30 cities show an increase of 20 % compared with the previous week, and 28 per cent. compared with one year ago, a part of which is explained by the recent heavy dealings in stocks. The movements of freight, as shown by railroad returns, is daily augmenting, particularly the east-bound tonnage, and is the more noticeable on account of the diversion to all-rail ports of breadstuffs during September to lines caused by high rates on the water routes. Chicago papers observe no curtailment of trade as an effect of lower prices for cereals or disturbance at the packingyards: "None of those things that would naturally be expected to create distrust and despondency have as yet had that effect." The price of wheat at Chicago on Monday touched the lowest point in 25 years, December, 1884, alone excepted, viz., 6934 # 7

The Stock Exchange markets have been ern, 623/6. Canada Pacific, 711/8; Consoli- ceding years.

dated Gas, 811/4; Central Pacific, 485/4; Delaware, Lackawanna and Western, 137 %; Delaware and Hudson Canal, 10456; Erie, 35%; ditto, preferred, 78; Kansas and Texas, 36%; Louisville and Nashville, 52; Michigan Central, 93; Manhattan Consolidated, 1491/2; Missouri Pacific, 115; Minneapolis and St Louis, 21 1/4; New York Central, 1123/4; New York and New England, 59; New York, Susquehanna and Western, 7; do. preferred, 2134; New Jersey Central, 6234; Northwestern, 1161/2; Northern Pacific, 2834; Northern Pacific preferred, 63; Ohio and Mississippi, 275%; Oregon Transcontinetal, 33 1/8; Pacific Mail, 54 1/4; Reading, 36%; Richmond and West Point, 29; St. Paul, 94½; St. Paul, Minn. and Mann., 123; St. Paul and Duluth, 56½; Southern Pacific, 38½; Union Pacific, 62½; Western Union Telegraph, 7714; Oregon Navigation,

United States bonds alored as follows

Chited States bonds Closed as	TOHOW	18 :
. S. 8 per cents	Bid.	Asked.
68 '91 coupon	111116	11184
1907 соцроп	12812	12816
. S. Currency 5s, 1895	1:26	-
. S. Currency 6s. 1996.	12816	-
	13116	-
. S Currency 6s, 1898	18444	1000
N Currency 6s 1800	19012	

Among the dry-goods jobbers the volume of business for the week has much exceeded the average of corresponding periods, and manufacturers are largely sold to arrive. All classes of cotton goods are in demand. Cotton is lower in consequence of large receipts. Jobbing houses in the grocery trade report a satisfactory business, but the West is backward, suggesting a surmise that there is less dependence in that section on Eastern markets. The coffee speculation has not fully subsided. In refined sugars there have been free purchases for export in anticipation of the coming change in drawback allowance. Breadstuffs are depressed by the large supply of wheat and high rates of ocean freights, corn having the preference for export at the relatively larger decline. The Government crop report for October shows a good average in almost every product of the ground. The wheat crop has increased 10,000,000 bushels since last report, and is now estimated to be 453,000,000 bushels. The production of corn shows a falling off as compared with last year, but it will be quite 1,650,000,000

bushels. Money tends to more firmness and is in demand in the interior, yet some of the banks have funds to invest in commercial paper. The weekly statement of the banks shows a loss of \$900,000 on surplus reserve; losses expanded, \$3,561,200, and deposits upward of \$3,000,000, reflecting the increased demand for funds. Money on call is about 7 %. Commercial paper is in fair demand. We quote 30 to 90 days' indorsed bills receivable at 6 %; longer dates, 6 % @ 9 %. The Bank of England rate of discount is unchanged at 31/2 %. Foreign exchange is dull and lower, and actual rates are very near the gold importing point. Silver is

higher. Judge Wallace, in the United States Circuit Court, denied the application of the national banks for a permanent injunction to prevent the collection of taxes on bank capital in the State of New York. After reviewing the different authorities Judge Wallace says: "The conclusion is reached in accordance with the recent decision of the Court of Appeals of this State in re MacMahon vs. Palmer, when it was held that the taxing system of this State does not result in taxing national bank shares at a greater rate than is assessed upon other moneyed capital in the hands of individual citizens of the State. The motion for an

injunction is denied." The imports of merchandise at this port for the week were \$2,060,000 below those of the previous week, the total valuation being \$7,089,234, and making the aggregate since January 1 \$335,110,000, as against \$303.-219,000 for the same time in 1885, and \$341,219,000 in 1884. The exports of produce and merchandise were \$581,000 below those of the previous week, the total valuation being \$5,989,807, making the aggregate since January 1 \$248,957,000, as compared with \$259,505,000 for the same time in 1885, and \$253,540,000 in 1884. The items include 330,934 bushels wheat, 343,649 bushels corn, 19,123 bales cotton, 6,933,079 gallons petroleum, 3,262,805 lb cutmeats. The chief of the Bureau of Statis ics reports the exhave aggregated \$14,282,528, compared to \$9,007,713 for September, 1885. For the first three months of the present fiscal year the aggregate has been \$40,967,033, compared to \$25,439.474 for corresponding period of 1885.

The exports of specie from this port for the week were \$158.741, making a total since January 1 of \$44,651,263, as comwith \$19,747,909 for the same time in 1885, and the imports were \$709,462, making a total of \$16,768,000 since January 1, as compared with \$10,500,000 in 1885. With

The Stock Exchange markets have been compared with \$10,500,000 in 1885. With two exceptions the imports at New York in generally lower under bear pressure based on rumored difficulties in the Northwestern pools, but to-day such apprehensions were pronounced visionary and a strong upward reaction ensued. Pacific Mail and Reading were both weak, adding to the temporary depression. Recent reports concerning a prospective continuation of the New York and New England with other roads are at least temporarily put to rest. Quotations at the close are as follows: Burlington and Quincy, 138%; Canada Southern, 62%. Canada Pacific, 71%; Consolir ceding years.

Trade Report.

New York.

American Pig. - The scarcity of Foundry Iron, and particularly of No. 1, continues unabated, and, in fact, has been growing worse during the current week. The sellers generally are demanding close up to \$19, which has been paid recently in the majority of rumors concerning the possible action of the leading furnace companies, so far as contracts for next year are concerned, but, as we had occasion to state some time since, it is believed on good authority that they will not be entered into until possibly the beginning of next year. Contradictory reports are current in regard to them, some asserting that a considerably higher price will be fixed upon, while others insist that it will be the policy of the companies to keep the prices low, so far as it is in their power to do ment. We quote Standard brands No. 1 Foundry, \$18.75 @ \$19; No. 2, \$17.50 @ \$17.75, and Gray Forge, \$16 @ \$16.50.

Scotch Pig.-There has been a little more doing, but yet the market remains quiet, and interest centers chiefly in the news from the other side, where the market continues strong, with a rising tendency. Higher prices have been paid during the week, and importers generally insist upon revised quotations, which are: Coltness, \$21.75 @ \$22 to arrive; Gartsherrie, \$20.75 @ \$21; Shotts and Langloan, \$20.75 @ \$21; Carnbroe and Glengarnock, \$19.50 @ \$20; Summerlee, \$21; Dalmellington, \$19.75 @ \$20; Eglinton, \$19 @ \$19.50, and Clyde, \$19.50 @ \$20.

Bessemer Pig.-There have been some sales of Foreign Bessemer Pig during the current week, one lot of 2000 tons being placed under \$19. Sellers generally insist upon the latter figure as the lowest basis for transactions still pending. We are informed that Foreign Iron has been bought chiefly for the purpose of mixture, since the price is still above that of domestic works. There have been some sales also of Domestic

Splegeleisen.—The market has gained in strength under inquiries from a number of the different Steel works, and it is rumored that there is a speculative movement abroad. The only transaction reported is a sale of 2500 tons for early delivery. We quote \$25.50 @ \$26 for 20 % Spiegeleisen, option English or German.

all grades of Bar Iron and the greater volume of business done keep the market steady. We continue to quote Common Iron, 1.65¢ @ 1.70¢; Medium, 1.70¢ @ 1.75¢ and Refined, 1.85¢ @ 1.95¢.

Structural Iron and Steel.-The current inquiries, while numerous, are not in the aggregate equal to those of former weeks, but, as the mills are still full of orders for the near future, the market continues steady and firm. We quote, according to quality, for Angles 2.15¢ @ 2.30¢, delivered, and Tees at 2.5¢ @ 2.6¢, for round lots. Steel Angles are quoted 2.40# @ 2.50#, according to quality. Store quotations remain 2.45¢ @ 2.50¢ for Angles, and 2.75¢ @ 2.8¢ for Tees. American Beams and Channels are nominally 3¢ base from dock for all or-

Merchant Steel .- We quote nominally for the range of ordinary to good grades as follows: American Tool Steels, 71/4 @ 9#; Tool Steel of special grades and finer qualities, 12# @ 20#; English Tool, 13# @ 15 1/4; common grades, 7 @ 9 ; Crucible Machinery, 3.75¢ @ 4.50¢. The Steel Association quotes base prices: Round and Flat Spring, 2.6¢; Round-Edge Tire, 2.3¢; Spring, 2.6¢; Round-Edge Tire, 2.3¢; not run the market up on themselves. Square-Edge Tire, 2.5¢; Toe Calk, 2.4¢; Under these conditions there is reason to Sleigh Shoe, 2.2¢ @ 2.5¢; Open-Hearth Machinery, 2.5¢, and Bessemer Machinery,

Plates .- For immediate delivery the market is firm. For the future mills have less work, but are relying upon the prospect of current orders to keep them busy. quote for round lots: Common or Tank, 2.25¢ @ 2.35¢; Refined, 2.35¢ @ 2.40¢; Shell, 2.5¢ @ 2.6¢; Flange, 3.40¢ @ 3½¢; Flange, Extra, 4¢ @ 4¼¢. For small lots of Steel Plates the quotations are as follows: Tank, 2.70\$ @ 2.75\$; Ship, 3\$; Shell, 3\4\$; Flange, 31/2¢, and Fire-Box, 41/4¢ @ 41/2¢, on dock.

Steel Wire Rods .- Beyond a small current business nothing has been done. It is difficult, even practically impossible, to place orders for early delivery, while for the future the market is dull at \$36 @

Steel Rails.-We hear of a sale of one lot of 5000 tons by an Eastern mill and of a numhas been very quiet in the East. In the West, on the other hand, there have been very heavy transactions, aggregating fully livered at tide; others quote between 100,000 and 120,000 tons for 1887 delivery, in some cases up to November. This business has been distributed between North Chicago and Joliet mills. Nearly the Gray Forge, although as yet very little entire quantity has been taken by Western and Northwestern roads, one company alone One of the strongest features in the market bly attend to. There is a great demand for placing an order for 40,000 tons. It is un- is the absolute scarcity of good brands for large sizes-infact, greater than the supplydone at \$37 @ \$37.50, Chicago. The Penn-need suffer inconvenience for want of Iron remain firm and unchanged. Discounts are

place its usual large order, ranging between 25,000 and 30,000 tons, with three mills on the line of its road. We hear also of a sale of 10,000 tons of Foreign Rails, Cammel's, made to a Southwestern road, delivered at New Orleans, at a price which, it is stated, lies between \$37.50 and \$38. It is evident from the quotations which have been made by foreign sellers in the Southwestern and Pacific Slope markets that the territory is for the present controlled by them. Even the most favorably located American mills for Gulf delivery cannot come within \$1 @ cases. There are a good many conflicting \$1.50 of the prices which have been paid during the past month or two. We quote for early delivery at Eastern mills \$35 and for 1887 delivery \$34 @ \$34.50.

Old Ralls.-We note a sale early in the week of about 1600 tons of American T's at \$21, f.o.b. at Eastern port. Also a sale of 500 tops of Foreign T's and bridges and of 1200 tons of Double Heads from store for the West; 5000 tons of Foreign T's have been sold at \$21.50, delivered at Philadelphia, for October, November and December ship-

Scrap.—The market is firmer and some small transactions have taken place during the week. The majority of holders ask prices considerably higher than those which consumers are willing to pay. While the supply in yard is small, there is considerable Scrap Iron in store, and the demand continues moderate. We quote nominally \$19.50 @ \$20 from vard.

Rail Fastenings.-We quote 2.15¢ @ 2.25¢ for Spikes, delivered at New York, 1.75¢@ 1.90¢ for Angle Fish Bars, 2.50¢ @ 2.75¢ for Bolts and Square Nuts, and 3¢ for Bolts and Hexagon Nuts.

Philadelphia.

Office of The Iron Age, 220 South Fourth St., }
PHILADELPHIA, October 12, 1886. }
The market has been somewhat less active during the past week, but the feeling is growing stronger, and an early movement toward slightly higher prices is confidently expected. The position of sellers is steadily improving, but there is a good deal of hesitancy in regard to the future. The "boom" which took place some years ago is too recent to be forgotten, and the intention is to avoid, if possible, a repetition of the events of that time. Consumption is believed to be larger than it has ever been. but the capacity for production has grown in still greater proportion, so that there is no probability of inconvenient scarcity. After so many years of depression it is only natural that producers should desire the Bar Iron.—The rise in raw materials of highest figures the market will afford, but a steady, uniform business is thought preferable to a few months of abnormally high prices, followed by years of depression. Consequently there is no disposition to crowd prices too rapidly, but rather to meet the demand with such slight advances as may seem to be warranted from time to time. A sharp watch is kept on foreign markets, and it may be taken for granted that no material advance will be made here unless foreign markets lead. There are some indications of a movement of that kind, but it will not do to repeat the mistake of 1880-81 by loading up at rapidly advancing prices, and then find that after all our own mills and furnaces could have supplied better and cheaper Iron, and that, too, quite as soon as the stuff was required. That kind of trading does not prevail at present. There are very few buyers but would be glad to duplicate every purchase they made last month, but they are not uneasy because they cannot do it. The disposition is to wait until they are more nearly in need, and then pay the advance if it is unavoidable. People do not scare the way they used to, and unless some great change of feeling takes place they will expect steady, perhaps slightly higher, prices, and a very large volume of business.

Pig Iron.-The market has become firmer, although the demand is not quite as active as it was a week or two ago. The position of holders becomes stronger from week to week, and, after dropping all the inside quotations, the higher figures are now being made a little higher still. Brands that were \$19 during the summer months gradually moved up to \$19.50; now \$20 is named, and so on all the way through. There is no concerted movement, but each brand is held with increasing firmness, and at higher prices. Some buyers have been trying to place orders for next year's delivery, but very few have been able to do so at the old prices. In the majority of cases sellers decline to quote. They are either not ready to commit themselves squarely to an advance or are undecided as to the extent of the advance, but in any case they will not duplicate contracts made for the last quarter of ber of smaller orders, otherwise the market the current year. Some of the smaller companies are selling a little Iron at about \$19 @ \$19.50 for No. 1 Foundry, deand it would probably be a difficult matter to buy largely at the inside figure. The market is evidently moving toward the Edgar Thomson, Cleveland, Union, \$20 for No. 1, \$18 for No. 2, and \$17 for business has been done at these figures. derstood that the bulk of this business was immediate delivery, and, although no one causing more or less of a scarcity. Prices sylvania Railroad will during this week of one kind or another, it is significant that as follows: Lap-Welded Black, 521/2 %;

hand than they have had for years. Sales during the week have been at prices ranging from \$16.25 to \$16.50 at tide for Gray Forge, \$17.50 for No. 2 Foundry, and \$19 to \$19.50 for No. 1, asking rates now being about 50¢ higher. Southern Iron is entirely out of the market; nothing for sale at prices likely to be acceptable to buyers.

Foreign Iron.—Bessemer Iron is very much neglected, there being no demand, although offered at unusually low figures, say \$18.50 @ \$19. Spiegel is in demand, with a probability that large lots would be taken at about \$25.25 @ \$25.50 for 20 %. Sellers quote \$26 firm, so that no sales have been

Blooms.-Foreign markets are very ensitive just now, and it is difficult to get any one to name firm quotations. Cable advices report mills full of work for the balance of the year, and owners not disposed to do anything at present prices. Nominal rates are about as follows: Rail Blooms, \$26.50 @ \$27, c.i.f., duty paid; Nail Slabs, \$28@\$28.50; Sheet-Iron Billets, \$29 @ \$30; higher qualities for Boiler Plate, &c., \$36 @ \$38; Charcoal Blooms, \$50 @ \$52; Run-out Anthracite, \$43 @ \$44; Scrap Blooms, \$34 @ \$35, and Ore Blooms, \$34 @ \$35.

Muck Bars .- There is a fair demand, but prices remain about as last quoted, say \$30.50 @ \$31 at mill.

Bar Iron.-There is not much change since last week. Some say the demand is less active, but those having orders to place find the mills very full of work, and prices firmer than they have been for years. The demand for specialties has been very large, and almost every mill in the neighborhood has from six to eight weeks' work on hand This with a considerable daily demand has placed manufacturers in a strong position, that prices are easily maintained, and, in fact, look very much as though they might go still higher. City mill prices are from .9¢ to 1.95¢, store prices 2¢ for best Refined Bars; medium quality, 1.75¢@1.8¢. Skelp 1.95¢ @ 2¢ for Grooved and 2.25¢ for

Plate and Tank Iron.-No change can e reported in this department. There is a very rgent demand for quick deliveries, but as the mills have about all their capacity engaged it is difficult to place new orders, although full prices would be paid. The outook is very satisfactory, plenty of work sesured for the balance of the year, with innquiries for large lots for later dates. Prices are about as follows: Ordinary Plate. 2.20¢ @ 2.25¢, delivered; Tank, 2.25¢ @ 2.30¢; Shell, 2.5¢; Flange, 3.5¢ Fire-Box, 4.25¢; Steel Plates, Shell, 3.25¢; Flange, 3.5#; Fire-Box, 43/4# @ 5#.

Structural Iron. - As in other depart- It is claimed that sales of Bessemer Iron nents, business is very active. There is all the business that can be handled-more than can be disposed of promptly. The amount of work in hand among all the large consumers is ample guarantee for activity in Structural Iron for months to come. Prices are firm, and may be quoted about as follows: 2.20¢ @ 2.25¢, delivered, for Angles; 2.25¢ @ 2.35¢ for Bridge Plate; 2.6¢ @ 2.7¢ for Tees, and 3¢ for Beams and Channels.

Street Iron.-There is no special change to note; the demand is satisfactory and prices are steady, but have not advanced in proportion with other specialties. There has been a gradual stiffening, however, and quoted rates are more generally adhered to The than they have been for some time. usual quotations are about as follows:

Best Refined, Nos. 26, 27 and 28.
Best Refined, Nos. 18 to 25.
Common. \(\frac{1}{2}\ell\) east than the above,
Best Bloom Sheets, Nos. 26 to 28
Best Bloom Sheets, Nos. 22 to 25
Best Bloom Sheets, Nos. 16 to 21
Blue Annealed.

Steel Rails.-The feeling is gradually improved, and with inquiries for large lots, and a certainty that consumption will be fully equal to the maximum of production. manufacturers are disposed to be very firm in quoting \$34.50 @ \$35 at mill. A good deal of discrimination is used in regard to deliveries, as there is a large amount of business on hand, and makers are desirous of accommodating their regular trade as far as possible, besides keeping some room for new orders in case prices make a sudden advance. On the whole it is considered that the position is improving, and present quotations as low as will be made perhaps for a long time to come.

Old Rails.—The market has a very firm tone, and with very light offerings prices are higher. Sales have been made at \$21,50 @ \$21.75 for shipments to Philadelphia, with the last-named figure now bid, and \$22

Scrap Iron.—There is no special change; the demand is fair and prices well maintained, as follows: No. I Wrought Scrap, \$19 @ \$19.50; Selected do., \$20 @ \$21; No. 2 do., \$13 @ \$14; Turnings, \$14 @ \$14.50; Old Car Wheels, \$15 @ \$16; Old Steel Rails, \$20 @ \$21; Cast Scrap, \$14 @ \$15; do. Turnings, \$10 @ \$10.50. Fish Plates wanted at about \$25.

Wrought-Iron Pipe .- Nothing of importance to note. The market has a strong undertone and mills have all they can possivanized, 30 %; Lap-Welded Galvanized, 35 %; Boiler Tubes, 47 1/2 %.

Nails .- Notwithstanding the cutting of Philadelphia market shows no disposition to follow. Of course there are some brands of Nails that for carload lots can be bought as low as \$1.95 and perhaps less, but for A No. 1 goods \$2.20 from store is the price, and holders of such Nails are determined not to sell for less. Stocks are light, two of the representative mills being closed, one for repairs, the other on account of labor trouble, but both are expected to resume in the course of a few weeks.

Pittsburgh.

Office of The Iron Age, 77 Fourth Avenue, PITTSBURGH, PA., October 12, 1886.

There is no important change to note in the general business situation; there is continued activity, and it is of a regular, legitimate character. There is no evidence of a speculative mania, so common in years gone by. Notwithstanding the season for work of that character is being pretty well advanced, natural-gas development is still being pushed forward with a good deal of energy, and there is no abatement in the demand for Pipe in consequence. All the towns in this section of the country will soon be supplied with gas, and instead of being the greatest this will be one of the lightest Coal consuming sections in the coun

Pig Iron.—There has been less business the past week, but for this good reasons can be assigned. A great many consumers have been buying freely for some time past, not only for immediate but for future delivery; most of them have contracts covering their wants from one up to three months to come; the fact that there has been an advance of from 50¢ to 75¢ \$ ton has not been without its influence in checking sales. Furnaces here and at nearly all points tributary to this market are sold ahead; offerings are light in consequence, and this fully offsets the fact that consumers all bought ahead. Indeed, notwithstanding the volume of business has fallen off somewhat, the market is even stronger than it was a week ago, and furnacemen generally expect prices to go still higher. But very little Southern Iron has been offered here for some time past. We quote

	prices as follows:		
	Neutral Gray Forge \$16.00 @ \$16.50,	4	mos
١	AH-OF6 MIH 17.00 @ 17.50	4	0.0
	White and Mottled 15.00 @ 15.50.		mos
d	No. I Foundry 18.00 @ 18.50		96
1	No. 2 Foundry 17.00 @ 17.50		44
	No. 3 Foundry 16.25 @ 16.50	Ä	6+
	Charcoal Foundry 20,00 @ 24 00		46
	Cold-Blast Charcoal 24.00@ 27.00.		40
	Bessemer Iron 19.50 @ 20.00,		46
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have been made at \$18.75 @ \$19, cash, but buyers claim that it is still to be had at \$18.50, cash, but this, to say the least, is doubtful. Good brands of Gray Forge are stiff at \$16.50, four months; sales of All-Ore Mill at \$16.65, cash.

Muck Bar-Is firmer, in sympathy with the advance in Pig Iron, and we now quote at \$28 @ \$28.50, cash. There have been but few sales above \$28 @ \$28.25, cash, very few above \$28, but some mills are

Manufactured Iron.-The mills are re ported pretty fully employed, and the market for good Iron may be quoted steady on a basis of 1.70¢ @ 1.75¢ for Bars, 60 days, 2 % off for cash. There has been a gradual stiffening up for some weeks past, owing to increased demand as well as the enhanced cost of Pig Iron. Skelp Iron, for which there has been a heavy and urgent demand for some time past, has advanced more probably than any other kind, and large orders for immediate or near-by delivery have had to be refused, as the mills making it are all sold ahead. Railroads continue to be libera buyers of Merchant Iron, as the car shops and locomotive works are all busy, and as a rule they want a good quality of Iron; some of them will not have Old Rail Iron at any price. Mills using Old Rails will also have to put up prices, as Rails have advanced much more than Pig Iron of late.

Nails.—There has been no important change in the situation since our last report; there is a fair business, and, so far as we can learn, the prices adopted by the association at their last meeting are being adhered to. We continue to quote in carlots and upward at \$2, 60 days, 2 \$ off for Iron, and \$2.10 for Steel. Of the factories here Chess, Cook & Co., Shoenberger & Co. and Jones & Laughlins are in operation, while those of Zug & Co. and Moorhead, Bro. & Co. are standing idle. The regular monthly meeting of the Western Nail Association takes place to-morrow at Cincinnati, but it is not expected that anything beyond routine business will be transacted.

Wrought-Iron Pipe.—The Pipe mills are all being pushed to their utmost capacity, and this will be the case for some time to come. Prices firm, but unchanged. Discount on Black Butt-Welded Pipe, in carlots and upward, 421/2 %; Galvanized do. 32 1/2 %; Black Lap-Welded, 55 %; Galvanized do., 371/2 %. Less than a carload discount 21/2 % below rates above quoted. Boiler Tubes, 471/2 %; Casing, all sizes, 471/2 %; 2-inch Tubing, 15¢ P foot, net; 8-inch Drive-Pipe, \$1.40.

several leading companies have less stock on Butt-Welded Black, 40 %; Butt-Welded Gal- owing to the continued upward tendency in prices. There have been but few sales made of late, in the absence of which we quote at \$24.50 @ \$25. There have been price both in New York and Baltimore, the so far as we can learn, no sales made as yet above \$24,50, but they are not to be had now under \$25. Old Steel Rails also scarce and firm; quoted nominally at \$22 @ \$22.50 for short and \$23.50 @ \$24 for long lengths.

> Steel .- There is a continued good demand for all kinds of Merchant Steel, and prices are firmer. Bessemer Blooms and Billets quoted at \$31.50 @ \$32, and the same quotations are being made for Nail Slabs: Rail Ends and Bloom Ends are in demand, with but very few offering. Best brands of Refined Cast Tool Steel, 8¢ @ 9¢; do. Crucible Machinery, 33/ @ 4#; Open-Hearth do., 21/4 @ 21/4.

> Steel Rails .- Mills here are not in condition to take orders for immediate or near by delivery, and there are not very many orders offering for next year's delivery.

Railroad Track Supplies .- There is a fair demand, and prices are firmer, but without change. Spikes, 2.40¢, 30 days, delivered; Splice Bars, 1.70¢ @ 1.75¢; Track Bolts, 2.75¢ with Square and 2.85¢ @ 3¢ with Hexagon Nuts.

Old Material.-There is an increasing demand, and all kinds of Scrap are firmer, in scant supply and tendency upward. No. 1 Wrought Scrap has sold at \$18.50 @ \$19, net ton; Wrought Turnings quotable at \$14 @ \$15; Car Axles, \$24 @ \$25; Cast Borings, \$12 @ \$13, gross; Old Car Wheels, \$17 @ \$17.50; Open-Hearth Steel, mixed lots, \$21 @ \$22, gross ton, and in demand.

Coke .- Blast-furnace Coke remains unchanged at \$1.50 \$1 ton on cars at ovens.

Window Glass .- There is a fair business, but no recent change in prices. Discount still quoted at 75 %.

Chicago.

Office of The Iron Age, 36 and 38 Clark St., Cor. Lake St., CHICAGO, October 11, 1886.

The favorable conditions of trade have continued through another week. Orders nave been piling up to an extent almost unprecedented. Immediate wants are so pressng that buyers to induce prompt delivery at times voluntarily offer an advance on the market value for some classes of Iron. There seems to be no impediment in the 'progress of trade. The danger now apparently lies in a too rapid increase in the price for Pig Iron and finished material. The country is becoming excited over the prospect. Each manufacturer is forcing his capacity to enlarge his stock, with, at the moment, good prospects that it will have a ready sale, but as all others are doing the same thing it looks as if the market might be overstocked during the winter. Manufacturers who are now having a reasonable profit on their respective lines

would do wisely in taking only enough orders to keep them well employed at current rates, instead of demanding higher prices as a premium for delivering goods on late orders and putting off deliveries on those that were placed weeks before at a lower figure. This ort of dealing has a tendency to "boom" prices illegitimately, which would certainly be disastrous to next year's trade if carried to excess. Higher prices now prevail in all classes of Iron products. On Pig the advance ranges from \$1 to \$3 \$7 ton in this market, according to grade, and about the same proportion of advance is being obtained on all goods proceeding therefrom.

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Hardware.-Jobbers have had another ery busy week. Orders and shipments thus far this month are greater than for the same period in September. While the demand for Shelf Hardware and seasonable goods is excellent, that for Heavy Hardware, Wagon and Carriage Wood stock is more than can be taken care of. The general clamor for prompt shipment prices firm and giving manufacturers an ex cellent opportunity to advance prices. Beyond the growth of trade and the increased firmness at which all goods are selling there are no new features to mention. Quotations on Wagon Springs and Axles have been withdrawn. All stocks pertaining to this line of manufacture are scarce.

Barb Wire .- The demand for small lots ontinues very good, and jobbers quote from store 3 1/4 for Painted and 4¢ for Galvanized. These prices are shaded in larger lots and less than carloads. Manufacturers quote carload lots 3¢ for Painted and 3%¢ for Galvanized. The demand for such quantities is gradually falling off, but nevertheless fair for the season. The low prices which have prevailed for months have no doubt induced large buyers to lay in supplies that will cover their fall demand, and perhaps portions of that for next spring. makers' stocks are light now there will be an opportunity for accumulation, and prices are consequently expected to continue weak for some time to come

Nails.-Jobbers continue to quote Iron Nails from store at \$2.20, and Steel Nails at \$2.30, with the usual rebate of 5¢ 78 keg in carloads, I % off 30 days. We hear of no shading of these figures on Steel Nails, on account of light stocks and the extra demand. Iron Nails are less firm, but no open concessions are noted. In carloads makers price at mill is \$2.10, net, 60 days, 2 \$ of to days, for Steel Nails, with the understanding that Iron Nails shall be sold at 10¢ below the price of Steel. The Jones & Old Rails.—The market for Old Iron Laughline mill, Pittsburgh, began cutting Rails continues in an unsettled condition, Nails to-day. Their warehouse here has 386.

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been almost depleted of stock of any kind this class of Iron declare that they cannot wire Nails are unchanged at \$3.50 % keg as afford to pay present prices for Old Rails \$15 @ \$15.50 for No. 1, and \$1 @ \$2 less for for many years, and in the case of shipments

ever they obtain a new order for castings if the present rate of demand continues. they immediately cover it on Pig Iron, which they seldom can obtain without meeting an advance of 25¢ @ 50¢ P ton. The relatively has never been greater, and yet are out of the market. Those who can sell are reaping the benefit of 50¢ % ton advance on carload lots. Lake Superior Charcoal Iron is now quoted \$20 @ \$20.50 on choice brands in lots of 100 tons or more, not exceeding 90 days' delivery. Coke Irons for prompt shipment are no more plentiful than the Charcoal brands, and are commanding about the same figures for small and round lots. Standard brands are quoted at \$19.50 @ \$20, and sales have been refused at less than these figures during the past week. All Ohio Blackband Irons are now pretty well equalized in prices. Quotations range from \$20 to \$21, four months, in carload lots, and choice brands cannet be had in large quantities, furnacemen being unwilling to make additional contracts for extended delivery. Many of the buyers would be willing to contract for a six months' supply on any of the above grades of Iron, but we hear of only one sale that was made during the week extending over three months. Hanging Rock Soft Coke No. 1 is quoted at \$18.75 and No. 2 at \$17.75. The demand for Southern Iron has lately improved, but the advanced price at which Iron is held has almost entirely excluded transactions. Prices have again advanced as follows: No. 1 Foundry, \$19 @ \$19 50; No. 2, \$18 @ \$18 50; No. 21/2, \$17.75; No. 3 Foundry and No. 1 Mill, \$17.25. Furnacemen report an extraordinary demand and the above prices very unsteady. There appears to be an irrepressible tendency to further advance prices, which is exciting the opinion of buyers on the advisability of placing orders for future delivery. It is authoritatively stated that one furnace company have 25,000 tons booked ahead, and have now before them a favorable offer on 10,000 tons more. Another company in the Birmingham district report 17,000 tons sold and two others of 12,000 to 15,000 tons each. It is believed in this market that this about approximates the condition of Southern furnaces, only differing in quantity contracted for by each one, and clearly shows why the Iron is reported scarce here.

Merchant Steel .- On the finer grades trade is reported very good for the week. Tool Steels, Drill Rods, Round and Flat of manufactured articles. The railroads are Machinery of the better grade are the greater in demand, much of it coming from the mining districts. There has also been a very good demand for Plate Steels from points along Lake Superior where Ore docks are being erected. No large orders were placed for common grades, though prices on cheap Steels are reported to be gradually improving. Jobbers make the following quotations : Low-grade Tool Steels, 7#; the establishment of quite a large concern standard brands, 71/4 @ 81/4, Crucible Machinery, Round and Flat, 4% @ 5%; Pittsburgh. The men at the head of this Spring Steels, railroad sizes, 4%; Open undertaking have ample means, large ex-Spring Steels, railroad sizes, 4¢; Open-Hearth and Bessemer Steels, 2½¢ @ 3¢; Plow Steels, 41/2 @ 5¢.

Steel Rails.—There are no developments of importance in this market. Prices are raw material, and with the railroads in Lake Superior Charcoal Irons, which have nominally as last quoted. The North Chi- the transportation of the finished material been talked of and obtained in some incago Rolling Mill Company met with a serious accident in the collapse of their reStates, they can hardly fail to make into our quotations this week, as will be seen air shops at South Chicago esterday. which resulted in the killing of three men and the maiming of seven or eight others who were in the shop at the time. The entire works with the exception of the blast furnace were closed down temporarily.

Structural fron .- The demand for Beams and Channels is something unusual for this season of the year. Makers are overrun with orders for stuff that they cannot supply, and builders are furious over the delay on material under contract. We hear of Punched Beams having been sold at \$3.60, which is 40¢ above the prevailing combination prices. Inquiries for small lots are so frequent that the Pottsville Iron and Steel Company, represented by Charles B. Froment, 115 Dearborn street, issue a weekly card to the trade specifying what sizes and shapes will be rolled during the ensuing week. Stocks in yards are all light, with no chance of replenishing. The following prices are noted as firm : Beams and Channels, combination price, 3.10¢; store price, 3.50#; Angle Iron, 2.40#; T Iron, 3#; Flitch the opinion that a smart boom is near at Plates, 21/4 @ 21/4.

Bar Iron.-The extraordinary demand

American Pig Iron.—There continues grade of Iron are quoting 1.75¢ @ 1.80¢ to be a heavy demand. It was presumed rates at mill. Jobbers of the same class of several weeks ago that the bulk of contracts Iron quote 1.90 @ 2¢ in small lots, city would not be entertained. for this year's supply had been placed. In trade, and 1.85¢ rates to country merchant looking over sales agents' books for the past trade. Jobbers complain that they cannot week there has been at least 25 % increase get mills to accept orders without paying in the tonnage over the last week in Sep- the highest price for immediate delivery. tember and the first week in October. The market in all respects is active and There appears to be no end to the amount of firm, with abundant indications that still

Galvanized Iron.-With the exception that mills report that they are full of work and not desirous of taking further orders the product of Lake Superior Charcoal furnaces market is about the same as last quoted. On ordinary grades jobbers are still quoting for immediate delivery most of the makers 60 and 5 % off in Juniata, and 60, 10 and 5 % off on Charcoal. On the best grades of Iron these prices, however, would be about what makers would ask on round lots.

Black Sheets.-We renew quotations on Best Refined grades at 3.10¢ for No. 24, 3.20¢ for Nos. 25 and 26 and 3.30¢ for No. 27. The demand is good for small lots, and mills are refusing orders From store jobbers quote ordinary grades at 2.90¢ for No. 24, 3¢ for Nos. 25 and 26 and 3.10 for No. 27. Manufacturers say that their price at mill is on a basis of 2.90¢ for No. 27, but cannot take orders for immediate delivery, and expect to advance this price before the first of next month.

Old Rails .- During the week Rails have sold in this market at \$24. Several buyers the idea of getting Rails at a price suitable for their purpose, and are turning their at tention toward puddling. Stocks are scarce, but what is left are held at higher figures than consumers are willing to pay.

Old Wheels .- There has been a fairly good demand for Old Wheels; one lot reported sold at \$17 and on another \$17.50 offered. Stocks on sale all light, with the at buyers' figures.

Scrap Iron.-The demand has been unusually good during the last 10 days. Mills which are looking toward changing their process of production have been looking round for cheap lots of Scrap, which has forced the price on No. 1 Forge up to \$21 asked by sellers. Several round lots were cated. No. 1 Mill is quoted at \$15, and No. 2 at \$10; Cast Scrap, \$14, net; Car Axles, \$22.50; Horseshoes, \$17; Stove Plate, \$9; Wrought-Iron Turnings, \$11 @ \$12; Cast Borings, Clean, \$8 @ \$8.50.

Chattanooga.

Office of The Iron Age, Carter and Ninth Sts., CHATTANOGGA, October 11, 1886.

A general review of the condition of business throughout the South, and especially in this district, continues to show a steady upward tendency both in volume and prices now pushed to their fullest capacity in transporting the freight that is being offered considerably. them, and still show no disposition to make any advances in prices at all embarrassing to the manufacturer. Of the number of new industries that are being inaugurated through the Iron districts, a large proportion will no doubt come to a successful Among them may be enumerated issue. for the manufacture of Cast Pipe at South perience in the business, and under the ing the predictions that real estate had reached its climax, it still continues to advance, and many parcels are changing dising is very active, and the tendency with profits and quick returns-which upon the South for the past two months has enabled the planter to gather the cotton crop in its best condition; the yield will be large in quantity and of a better quality than was anticipated earlier in the season.

Pig Iron.-The market reports from the different trade centers of the North, as published by their respective papers, are a very good index of the general feeling of the producers in the South, with the exception that there are not a few who are inclined to hand, which could be readily precipitated by a few designing manipulators. has worked marked changes in the con- no question that a degree of sensitiveness on dition of the market. Best Refined New the question of prices is being felt. Many at some advance in prices, though transac-Puddled Iron is now quoted from store in of the furnaces are holding off in the matter tions are not brisk for two causes. These small lots at 2¢, and in lots ranging from of making figures for large round lots, and are found in the fact that mining companies 5 to 10 tons at 1.90%. The 1.90% rate would are confining themselves to small sales at have light stock of unsold Ores to offer, and perhaps be applicable to regular customers top figures that are given in the market re- for the reason that late advance in prices in less than 5-ton lots, but sales are not ports. The increase in the consumption of does not meet the views of buyers. The

to work into Bars. Makers of the second grade of Iron are quoting 1.75¢ @ 1.80¢ offer of large lots to be delivered through more than double what were paid on conthe year and the first three months of 1887

Coke-Is still a scarce commodity with many of the furnaces, and occasionally stoppages are being made for want of it. A strenuous effort seems to have been made, and is still being made, in the construction of more ovens to largely increase the output, work foundrymen are having, and when- higher prices will be forced upon the trade but it still falls short of the requirements, and no better opportunity exists to-day in the United States for men with money and experience than to undertake at some suitable place the manufacture of Coke on a large scale.

> Miscellaneous .- Prices in all lines of Manufactured Iron have advanced from 5 to 10 %, and 1.75¢ @ 1.85¢ is the ruling rate for Bars, and 2.35¢ @ 2.45¢ for Spikes. Nails have also advanced about in the same proportion. The completion of the works for the manufacture of Butt-Welded Pipe is market quotation for this article. The demand for Furniture from the different factories continues unprecedented, with no prospect of its being lessened in the future.

Birmingham.

BIRMINGHAM, ALA., October 11, 1886. Pig Iron-Is in better demand than ever. Only small orders, and these for very early delivery, can be placed here now, nearly who have been in the market have given up all of the furnaces baving the bulk of their product sold for two or three months ahead. Transactions are mainly in Mill Irons for the very imperative reason that Foundry Irons are bardly to be had at all, and the stiffening of prices that the latter have shown for some two months is now equally noticeable in the former. One concern whose product has a good reputation, and who are in a position to hold for demand greater than the supply obtainable satisfactory prices, report sales of Mill Irons at \$13 for No. 1, and \$12 @ \$12.50 for No. 2, at the furnace. With these as the top figures prices of the last few days vary as much as 50¢, the upward movement having imparted a remarkable uncertainty to the trade. An order received this morning for No. 1 Foundry nets \$15.20 at the furnace. Production will sold a week ago at \$19, but cannot be dupli- be considerably increased for the rest of the year. The Williamson Furnace made its first cast on the 6th, and Woodward No. 2 will probably blow in some time next month, while both of the Sloss stacks, which have been cold for some time, will be in blast again by the end of the week. The Williamson Furnace, which is home-built so far as patent rights permitted, is already making Foundry Iron. Its first shipment will be made to-morrow to Cincinnati, being Mill Irons.

Miscellaneous .- Estimates for cast and shop work begin to reflect the increase in the cost of Pig Iron. There is no abatement of the firm demand in this line. Certain shapes of Bar Iron are hard to get. Bolts are up

Cleveland.

CLEVELAND, October 11, 1886. Pig Iron.-Business in this market is teadily improving and getting into better shape. The increasing consumptive demand is having its natural effect in strengthening prices, so that not only standard Irons are selling for better figures, but the readiness with which these advanced prices are accepted by buyers is believed to give evidence very favorable arrangement that they of higher selling prices all along the line. have made with the furnaces to get the The advances of 50\$ \$\forall ton and \$1 \forall ton for enterprise a successful one from a by the figures given below. But even this financial point of view. Notwithstand-price is not in proportion to the increased cost of production growing out of the higher prices for Ores, and therefore is but on step in the direction of the figures which The general business in merchan- is believed must be reached with n a few weeks. This expectation is also justified by merchants now is to make quick sales -small the increasing demand. The latter is such in the case of a few standard Irons that whole are much more satisfactory than the holders of them are not only not pushing old-fashioned Southern style of big profits sales, but inclined to offer them at such high and long time. The extremely favorable figures as to temporarily check the demand weather that has prevailed through the Following are the latest quotations for this

Charcoal Pig Iron.		
Nos. 1 and 2 L. Superior Charcoal. Nos. 3 and 4 Lake Superior. Nos. 5 and 6 Lake Superior. Southern Car-Wheel.	\$21.00 @ 21.50 @ 20.00 @ 25.00 @	22,50 21.00
Bituminous and Coke In	ons.	
No. 1 Bessemer	18.50 @ 17.50 @	\$19.00 19.50 18.50
Cinder Mixture	18.00 @	19.00

Iron Ore. -The Iron-Ore market is firm

tracts at the opening of the season. The rates now paid are \$1.75 from Escanaba, \$2 from Marquette and \$2.60 from Ashland. Total shipments of Ores from the upper lakes for the season up to and including September 29 are 2,677,386 tons, which is reported as an increase over the same time last year of 765,169 tons. Receipts at Cleveland last week were 26,315 tons, while there were sent forward to the furnaces 21,674 tons. for a few days, and possibly for this week, is disturbed by a strike on one of the railways which carries a large share of the Ores from this market. The following are present

selling prices in Cleveland:		
No. 1 Specular and Magnetic Bes-		
Semer Ores No. 1 Specular and Magnetic Non-	\$6.25 @	\$6.50
Bessemer Ores	5.50 @	5.75
Bessemer Hematites	5.50 @	5.75
Non-Bessemer Hematites	4.25 @	4.50

Old Rails. - Transactions in Old Rails near at hand, and the event will establish a have not changed much within the past week. A number of sales are reported at \$22.50 @ \$23 P ton, and no change is re ported from the general quotation of \$17 for Old Wheels.

Cincinnati.

CINCINNATI, October 11, 1886.

Pig Iron.-The excitement and feverishness which attended the large movement of Iron. Old Rails are held at \$21, and parties Pig Iron noted a week ago have also accompanied the dealings during the week under review. There has been no decrease in the volume of business, but, on the contrary, the aggregate sales have exceeded those of and some sales have been made at these figany other week since the opening of the The strong and buoyant tone if possible has gained in intensity, and at the close a further advance of 50¢ has been established, one sale of 5000 tons of No. 2 Foundry and No. 1 Mill Southern Coke Iron being reported, based upon \$17 and \$16 respectively, cash, here. A half-dozen sales of 1000 tons each of Charcoal and an equal number of Coke Iron have been made, while orders for 200 to 600 tons have been numerous. The business transacted has been largely made up of orders placed for future delivery, many tons contracted for not to be distributed until the early months of 1887. But while it has been the practice of the Southern furnaces as a rule to contract for their output thus far in the future, it has been the policy of the Northern stocks to keep nearer shore, yet the Southern makers have been to some extent guided by a conservative spirit which looks with disfavor upon a sudden and sharp advance which will of necessity prove pernicious to the trade. It has been due to the scarcity of available Iron that a larger share of the business during the week has not been for cash or close delivery. It is claimed that the leading Southern Coke foundries have accepted orders from 12,000 to 25,000 tons in excess of make, and also that the most prominent Charcoal furnaces are sold from 9000 to 17,000 tons ahead, while a number of others have orders which will absorb their entire output for two to three months to come. Several large consumers of Pig Iron during the week have attempted to stem the tide of the mar-

				ł.
r	Charcoal Foundry.			ľ
e	Hanging Rock, No. 1		\$21.50 20.50	
-	Southern No. 1	19.00 @	20.00	
	Southern No. 2	17.50 @	18.50	ı
t	Coal and Coke Found	ry.		ı
n	Ohio Soft Stonecoal, No. 1	17.50 @	18.00	
8	Ohio Soft Stonecoal, No. 2	16,50 @	17.00	L
_	Southern Coke, No. 1	18.00 @	19,00	ľ
d	Southern Coke, No. 2	17.00 @	17.50	ı
r	Southern Coke, No. 3	16,00 @	16.50	h
-	Ohio and West Pennsylvania Coke			Ľ
0	No. 1	20.00 @	21.00	ı
t	Ohio and West Pennsylvania Coke,			П
	No. 2	18.50@	19.00	ı
W	Forge.			L
у	Strong Neutral Coke	15.50 @	16.00	П
h	Mottled	18.50 @	14.50	Ľ
- 1	Southern Coke, Cold-Short,	15.00 @	15,50	Г
t	Car-Wheel and Malleable	Irons.	-	ľ
g	Southern Car-Wheel	22.00 @	24.00	ľ
h	Hanging Rock, Cold Blast	26.00 @		
-	Hanging Rock, Warm Blast			ı
	Lake Superior and Malleaple	22,00 @	28 00	ı
	Dane purposes and premounter		-2 00	П

undetermined as to the future, the extraor-

dinary advance in the freight of Lake Ore

unsettling everything. We quote for cash,

f.o.b. cars at Cincinnati, as follows:

Manufactured Iron.—There has continued to be a strong tone prevaling, and the past week has been productive of orders for both Plate and Bar Iron, Bar Iron, 1.65¢ @ 1.75¢; Charcoal Bar Iron, 2.65¢@ 2.75¢; ness continues good with nearly all of the Sheet Iron, Boiled, Nos. 10 to 27, 2¼¢@ 3¢; foundries and all car works tributary to this @ 1.75#; Charcoal Bar Iron, 2.65#@ 2.75#;

have been obtained.

Scrap. -For Rails we quote \$23 @ \$23.50, and for Wheels \$15.50 @ \$16.

Louisville.

LOUISVILLE, October, 11, 1886. Pig Iron.-The market during the last week has been very buoyant in tone, and advanced prices have been thoroughly essolicited from new trade at less than these Pig Iron in the South has been very marked latter, while admitting that some advance tablished. Round sales have been made for prices. What has been known for several this year, and if one-half the projected en- should be asked in consequence of the higher delivery during the next three or four years past as Common or Old Rail Iron, from terprises become reality it will be doubled lake freights, are slow and cautious about months, and large sales for one year's depresent appearances, will soon be ex- during the coming year. Quite a number of buying, for the reason that they do not yet livery could be booked if there was not so

small lots of Foundry, 100 to 300 tons, at freights have reached a higher point than and sellers. Furnaces are asking fully \$1 F ton advance for delivery 12 months delivery during the next three or four months, for which full quoted prices have been obtained. From present appearances a further advance on short deliveries will be made soon, as nearly all furnaces are sold up so far ahead on regular grades that they do not feel safe in booking further orders; in fact, some sales booked during the past week have been made with the provision that if the furnace was not able to make the The movement to the new furnaces Iron in the time named deliveries would be made as soon thereafter as the Iron was made. We quote for cash in round lots as

follows:			
Pig Iron.			
Southern Coke, No. 1 Foundry	\$17.00		
No. 2 No. 216	16,00		
Hanging Rock Coke, No. 1 Foun-	15,00	0	16,00
dry	17.00	0	18.00
Hanging Rock Charcoal, No. 1		-	
Foundry	20.00	0	91.00
Southern Charcoal, No. 1 Foundry	17.50	0	19.00
Silver Gray, different grades	15.00	0	15,50
Southern Coke, No. 1 Mill, Neutral	15.00	0	15,50
" No. 2 " "	14.00	0	14.50
" No. 1 " Cold Short	14.00	0	14.50
" Charcoal, No. 1 Mill	16.00	@	17.00
White and Mottled, different grades	12.50	0	13.50
Southern Car-Wheel, standard		-	
brands	22,00	0	24.00
Southern Car-Wheel, other brands	19.00	0	21.00
Hanging Rock, Cold-Blast	23,00	60	25,00
" Warm-Blast	19.00		21.00
		_	10000

Old Material. - Prices have advanced in harmony with the general advance in Pig in the South have shipped through Louisville on a basis that would have made the Rails net them \$22 here. Old Wheels, which were sold at \$14, are now being held here at \$15.50, ures. We quote for cash as below:

Rails, W ton	321.50	@ \$22.50
Wheels, W ton	14.50 (
No. 1 Wrought, W 100	.90 (
No. 1 Country Wrought, \$\mathbb{H}\$ 100	.70 (.80
No. 2 Country Wrought, \$\mathbb{P} 100	.50 (
No. 1 Cast, 19 100	.45 (
Boilers, cut, @ 100	.60 (65
Boilers, uncut, \$\mathbb{9} 100	.40 6	6 .50
Flues, Tanks and Sheets, \$\mathbb{P}\$ 100	.25 6	a .35
Axles, # 100	.90 (

W. B. BELKNAP & Co., Louisville, report as follows, under date of October II: Our report must be much the same as last week. Trade continues up to its full volume, and while there is no excitement in any quarter there is promise of a steady demand for some time to come. A prominent Southern customer advises us that owing to the longcontinued heat in his section, Alabama, cotton picking has barely begun; hence it is not surprising that their season for purchasing goods may be somewhat prolonged. A good many new enterprises are on foot in all directions which call for Heavy Hardware and Construction Material of all kinds.

Bar Iron—Is still selling freely, and prices are maintained at the figures which have been current now for two or three weeks. Manufacturers in this as in other lines seem to be afraid of losing trade if they advance prices; on this account some of them seem to be taking more orders than they can

promptly fill.

Steel.—We read and hear much about the scarcity of Steel stock, yet but few of the products of Steel have advanced in price This seems hardly consistent with the assertion made by sellers. Nails-Are coming forward but slowly;

local stocks are much reduced, and there seems to be no tendency to advance prices further, and but little inclination on the buyers' part to place orders at the full price

ket, holding off from purchasing, arguing against the advance, but with a flood of orders the rise has continued. Furnaces in the Mahoning and Shenango valleys are the future, the extraor.

Several lines of Hardware are very active, and spring contracts are being placed with freedom for Steel Goods, Snaths, Cradles, Hoes, &c. Altogether the situation is a Hoes, &c. Altogether the situation is a comfortable one, and collections fairly good.

St. Louis.

ROGERS, BROWN & Co., St. Louis, Gay Building, 204 North Third street, W. H. Shields, manager, report as follows, under date of October 11, 1886: There has been a smaller volume of business in this market the past week, growing out of the unwillingness of local buyers to keep up with the rapidly advancing views of leading sellers. Some considerable lots have changed hands, all at full prices. There has not been much contracting ahead, however, buyers seeming to think that the little spurt of activity will perhaps subside and give them a better chance later. Meantime the Southern and Ohio furnaces are booking orders covering their full capacity for long periods ahead. One Southern company has over 24,000 tons on its order-book in advance of make, while one Southern Charcoal furnace (that figures prominently in this market) re-ports its product sold until next May. Busi-Sheet Iron, Charcoal, Nos. 15 to 25, 21/2 @ market, and the average consumption of Pig Metal is much larger than it has been for a long time. The scarcity of cars in the old Ralls.—Higher prices have been Connellsville district is causing considerable inconvenience; cars are also very scarce for shipment from this point West. We

	quote for cash, f.o.b. cars St. L		****	
	Charcoal Foundry.			
	Missouri	18.00 @	\$19.00 20.00	
	Coal and Coke Foundr	y.		
	Southern, No. 1	17.50 @ 17.00 @ 18.00 @	18.50 18.00 22.00	
	Mill Iron.			
	Missouri. Southern, No. 1. Southern, No. 2.	16.50 @ 16.00 @ 15.00 @	17.50 17.00 16.00	
	Car- Wheel and Malleable	Irons.		
	Southern Lake Superior	20.00 @ 22.00 @	25.00 25.00	
1	Scrap, &c.			
	Old Wheels	16.50 @ 21.00 @	17.00 22.00 5.65	

he adin this out the btained nother pments the desonable Hardstock is he genan ex 98. Becreased g there otations e been to this nall lots te from vanized. ots and s quote 36¢ for quantirtheless

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Trade Report.

General Hardware.

The past week has been an uneventful one as regards matters of trade interest. The demand continues without special variation in its general volume, the experience of different parties varying somewhat, as some report an improvement and others a falling off in the amount of orders. There have been exceedingly few changes in price, the leading lines continuing at former quotations, with a rather firmer feeling in several lines of heavy goods. Collections are frequently referred to as being slow, some houses who are in the habit of availing themselves of discounts for prompt cash, taking the full 30 or 60 days on which the goods are sold.

NAILS.

There is in this market a moderate demand for Nails, without change in quotations or in the general tone of the market. The advanced cost of the raw material has not as yet resulted in giving higher prices or a much improved tone. We continue to quote \$2 to \$2.10 for small lots from store, the usual abatements being made for carload lots. Steel Nails are held at \$2.10 to

BARB WIRE.

The New York market is still irregular and low, with only a moderate volume of business. The desirability of doing something to secure a better margin of profits is admitted by the manufacturers, but without result thus far. Carload lots of Four-Point Galvanized are quoted at \$3.85 to \$3.90.

MISCELLANEOUS PRICES.

In the October 1 list of Iron Rivets, as sent out by the manufacsurers, an error occurred in the list price of 18-inch, No. 4, which was named as 16 cents, instead of 17 cents, the correct figure.

The manufacturers of Locks have been in session in this city to-day, conferring in regard to the condition of the market for this line. Nothing definite, however, was determined upon, and prices remain as hereto-

Sise, Gibson & Co., 100 Chambers street New York, have reduced the price of Coultaus' Door Holder, Japanned, to \$5 per dozen, net. The Bronze and Nickel-Plated Holders are quoted at discount 50 per cent. The trade will remember that by this Holder the door is held in any desired position by the pressure of the roller on the floor, the roller being covered with rubber to prevent injury to the floor or the covering.

At a recent meeting in Philadelphia the Lawn Mower manufacturers are reported to have adopted the list and discounts of last season for next season's trade.

The North Haven Mfg. Company, North Haven, Conn., are manufacturers of Fowler's Patent Graded Steel and Iron Spoons, the different patterns of which are represented in their circular, the goods being sold at the following price list, which is subject to a discount in case lots of 10 and 5 per cent, with 2 per cent. additional for cash in 10 days :

*	B 5/1	We come
Chain Border, Teas		
Chain Border, Tables		
Roman, Teas		90
Roman, Tables		1.80
Improved Chain Border, Teas		1.00
Improved Cuain Border, Tables		2.00
Oval, Teas		85
Oval, Tables		. 1.70
The Teas are packed 16 gross in		
	44.	case,
and the Tables 10 gross in a case.		

E. K. Tryon, Jr., & Co., Philadelphia, issue a circular, October 5, containing a list of Guns, Rifles, Revolvers and miscellaneous Gun Implements, which they are offering on special terms, and of which net quotations are given. They state that some of the goods thus offered have accumulated in excess of their present wants, many are secretary. This organization has continued to remnants of styles which they have dis- the present time, the direction and control of carded in order to reduce the line, while others consist of odi samples, &c. They are alluded to as perfect and new, unless otherwise stated. They also issue, October 10. a circular relating to Harrington & Richardson's Automatic Double-Action Revolvers and Smith & Wesson Revolvers.

Manufacturers of Axe, Pick and Hammer Handles, &c., refer to trade as satisfactory for this line of goods. Prices by the uses in the combination are strictly main tained, and, while lower figures are named by some manufacturers outside, orders are not always promptly executed, and the general market price is not affected thereby. The demand is also referred to as not seriously interfered with by this cause, and a good season's trade is anticipated.

The line of Meat Cutters on the market this season is substantially the same as it has been, and few new ones are offered The demand is satisfactory and a good season's trade is anticipated.

The following are the prices of the Arc Scales, made by the Arc Scale Mfg. Company, Davenport, Iowa, the list being subject to a regular discount of 50 per cent .:

No. 1, the Little Wonder, weighs up to 1 No. 1, the Little Wonder, weighs up to 1 pound. \$9.00

No. 2, Complete Postage Rate Scale, weighs up to 4 pounds. 15.00

No. 3, the Home Friend, weighs up to 10 pounds 18.00

No. 4, the Everlasting Scale, weighs up to 50 pounds 50.00

Pounds 50.00

No. 4, the Everlasting Scale, weighs up to 50 pounds 50.00

Pounds 50.00

No. 4, the Everlasting Scale, weighs up to 50 pounds 50.00

No. 4, the Everlasting Scale, weighs up to 50 pounds 50.00

No. 5, the Everlasting Scale, weighs up to 50 pounds 50.00

No. 6, the Everlasting Scale, weighs up to 50 pounds 50.00

No. 7, the Everlasting Scale, weighs up to 10 pounds 50.00

No. 8, the Home Friend, weighs up to 10 pounds 50.00

No. 9, the Home Friend, weighs up to 10 pounds 50.00

No. 1, the Home Friend, weighs up to 10 pounds 50.00

No. 2, the Home Friend, weighs up to 10 pounds 50.00

No. 3, the Home Friend, weighs up to 10 pounds 50.00

No. 4, the Everlasting Scale, weighs up to 50 pounds 50.00

No. 5, the Home Friend, weighs up to 10 pounds 50.00

No. 4, the Everlasting Scale, weighs up to 50 pounds 50.00

No. 5, the Home Friend, weighs up to 10 pounds 50.00

No. 6, the Everlasting Scale, weighs up to 50 pounds 50.00

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No. 6, the Everlasting Scale, weighs up to 50 pounds 50.00

No. 6, the Everlasting Scale, weighs up to 50 pounds 50.00

No. 6, the Everlasting Scale, weighs up to 50 pounds 50.00

No. 7, the Home Friend, weighs up to 50 pounds 50.00

No. 8, the Home Friend, weighs up to 50 pounds 50.00

No. 9, the Home Friend, weighs up to 50 pounds 50.00

No. 9, the Home Friend, weighs 10.00

No. 9, the Home F

The scales as above are furnished with brackets. The company are also about putting on the market their Plantation Scale, which is made on the same principle as their other goods. The arc is made of malleable iron, galvanized, with its upper end casehardened to bear well the friction of the weighing bar. The weight index arm folds up against the arc when the Scale is not in use and when portability is desired. The weight of the Scale is 19 pounds.

The existing arrangements for the regularity of the trade in Cartridges are generally regarded as working quite satisfacto-A few houses of some prominence are making to a greater or less extent irregular prices, but the goods are generally held without deviation from the figures designated by the manufacturers.

The Burnside Mfg. Company, a corpora tion composed mainly of Cincinnati stockholders, whose mills and factories are located at Burnside, Ky., are putting on the market a line of Red Cedar Faucets, and are represented in this market by W. H. Jacobus & Co., 90 Chambers street, New York. The special features of these goods are mentioned as being that they are made from the best red cedar lumber, and that the perfection of the machines by which they are made permits having the keys interchangeable, and accordingly the keys of the 6, 7, 8 and 9 inch are the same size and interchangeable for any of these lengths. Attention is also called to the low price at which these goods are offered, as per the following list, which is subject to a discount of 50 per cent.:

6	inch.	per	gross		,					,												\$10.	80
7	inch.	per	gross	١.		 			۰						۰	۰						11.	522
8	inch.	per	gross			 												,	,			12.	24
9	inch.	Der	gross					,					۰									15.	12
10	inch,	per	gross		0 1	 	0	0		0	۰	0	0	0			0					18.	72

The further advantages possessed by this line of goods are alluded to as being that they are tasteless, will not corrode, have no lining of cork, leather or other material to become loose, and that, owing to the simplicity of construction and nature of the material, they are very durable. The Faucets are packed in barrels, which contain of the respective sizes about the following number of Faucets: 6-inch, 30 dozen; 7-inch, 25 dozen; 8-inch, 20 dozen; 9-inch, 16 dozen, and 10-inch, 13 dozen. Burnside, Ky., was chosen as the location for their manufacture on account of the abundant growth of red cedar and other hardwoods in the vicinity, and also on account of facilities for manufacturing and shipping, being situated on the Cincinnati Southern Railway, and at the head of navigation on the Cumberland River. The trade will note with interest the offering in these markets of this line of goods of Southern manufacture.

SEABURY S. GOULD.

The death, which has already been announced, of Seabury S. Gould, president of the Goulds Mfg. Company, Seneca Falls, N. Y., occurred at Watch Hill, R. I., September 4. Mr. Gould was born in Sharon, Conn., August 8, 1812, and was therefore at the time of his death in his 75th year. At an early age he lived on a farm, there acquiring that taste for agricultural pursuits which characterized his later years, but in 1834 he made his home at Seneca Falls, where, after engaging in different business enterprises, in 1852 he became a member of the firm of Downs & Co. in the manufacture of Pumps, who made not only the Iron predecessor of the present Pump, but also Wooden, Suction and Chain Pumps. In 1865 Mr. Downs's connection with the Pump factory was closed and the sons of Mr. Gould began to take active part in the management of the business, and the foundation was laid of the present Goulds Mfg. Company. The old name of Downs & Co. was, however, in one form or another retained until 1869, when the present company was organized, the elder Mr. Gould ing president, his eldest son, James H., treas urer, and the youngest son, Seabury S., Jr. the business since 1870 having been left with the sons, its present proportions being referred to as the result of the business foresight, application and energy which they inherited. While Mr. Gould is refer red to as an eminently successful business man and a public-spirited citizen, appreciative tributes are paid to his character, indicating the estimation in which he was held by the community at large and the affection with which he was regarded by those who knew him intimately. The happiness and and devotion to the church of which he was for years a member and a liberal supporter, are especially alluded to. On the day of the funeral, when the coffin was borne by men who had grown gray in his employ, some of them having been with him from the first, all public places in the village and the manufactories were closed out of respect to his memory. ITEMS.

The Alford & Berekele Company, 77 Chambers street, New York, are issuing an illustrated price list of Guns, Pistols, Ammunition, &c., showing the line of these goods of which they are manufacturers' agents and importers. A variety of Breech

manufacturers and dealers in furnishings other fixtures for car doors, together with descriptive texts and miscellaneous tables relating to goods in this department.

The Hunter Sifter Mfg. Company, Cincinnati, Ohio, issue an attractive pamphlet entitled "Our Kitchen," which relates to Hunter's Sifters, Cyclone Egg Beater, Favorite Coffee Pot, Scales, &c.

The American branch of the Coventry Machinists' Company, 239 Columbus Avenue, Boston, the head office and works being at Cheylesmore, Coventry, England, issue an announcement relating to it the company attractive illustrated catalogue of the Club Bicycles and Tricycles, in which their different styles of these machines are illus trated and described.

Besides the catalogue of the Udell Works, North Indianapolis, Ind., to which we referred in our last issue, they publish a Ladder catalogue, showing a large variety of Ladders and some miscellaneous articles. It is stated that important additions have been made to their line of Ladders and House Furnishing Goods. Among the specialties represented is the Rope Reel, to which we have before alluded.

In the present condition of the Tack market it will be well for the trade to be on their guard against Tacks of irregular and light weights. For a long time there have been on the market Tacks purporting to be 14 or 1/2 weight, which when examined came considerably short, but it is now intimated that some well-known concerns are also doing this. The irregularity of the prices of Tacks is thus in a measure explained, as such a shortage will easily enable the quotation of an extra 10 or even 20 per cent. dis-

The striking advertisement on page 32 of the J. L. Mott Iron Works, 88 and 90 Beekman street, New York, in which they call attention to their line of Stable Fittings, will bo observed by our readers. They allude to the completeness of their assortment of these goods.

Our readers will observe the announce ment on page 20, in which T. Rowland's Sons, Philadelphia, referring to the fire on the 6th inst., which destroyed part of their works, state that they will be in a position to fill orders in about 10 days, and that they can now execute orders for leading sizes from their warehouse.

The trade will learn with regret of the reported assignment of S. G. B. Cook & Co., well-known Hardware Merchants, of Baltimore, Md. They were agents for a number of manufacturers, principally in the Eastern States, to whom their liabilities are supposed to be largely due. They were also intimately connected with the Scott Mfg. Company, and S. G. B. Cook is stated to be president of the Walker Horse Shoe Company.

Attention is called to the advertisement illustrating the Crown and Star Transom Lifters, manufactured by J. F. Wollensak, Chicago, for whom W. H. Jacobus & Co., 90 Chambers street, New York, are agents. These Lifters are intended to meet the demand for a simple and effective low-priced Lifter for operating ordinary Transoms in dwellings and hotels, the sizes which are now on the market being enumerated, with the list prices. It is also intimated that the sizes for store Transoms will soon be ready.

The Maine Mfg. Company, of Fairfield, Me., manufacturers of Clipper and Frame Sleds, have this season being adding several styles to make their assortment more complete, but embodying nothing especially Their catalogue shows the line which they are making, among which they refer to the Boston Clipper and the Maine Cutter as leading goods, the former having been on the market the past two years, and both meeting with a large sale.

The Canton Novelty Cutlery Company Canton, Ohio, announce a line of Pocket Cutlery in which the coverings of the handles are described as made of transparent celluloid, underneath which on the side of the handle can be placed photographs, society emblems and designs, name and address, business cards, &c. The effect of this deco ration is illustrated in their circular, which represents a number of specimen knives, the quality of which is also alluded to. It is intimated that as soon as the compay have beauty of his home life and his interest in requisite facilities they will make other novelties which their patent covers, such as Ra zors, Table Cutlery, Revolver Handles, Umbrella Handles, Door Plates, &c.

The Borthwick Saw-Set Company, Philadelphia, Pa., in their announcement on page 42, call attention, it will be observed, to their Saw-Set, a description of which we gave some time ago. They allude to the increasing sale of this article, on which they are at present behind in their orders, but state that they expect to be in position to supply the goods promptly in a short time.

The Frary Mfg. Company, Bridgeport, Conn., are putting on the market Frary's Patent Disintegrator and Strainer, a device for use in the kitchen for preparing vegetables and fruits for the table.

The Prescott Mfg. Company, Boston,

The Dayton Mfg. Company, Dayton, Ohio, tion is given, with directions for applying them. They allude to its cheapness, general for railway cars, issue their catalogue No. utility, ease of movement, freedom from 15, describing an exceptionally complete noise and from liability to get out of repair. line of Car Door Fittings. It includes the They state they have recently enlarged their various styles of Locks, Latches, Butts and factory and fitted it up with improved machinery, being thus put in a position to fill properly orders intrusted to them.

> The imports of Cutlery and Hardware for the week at this port comprised 163 packages, making the total 4828 packages since January 1, as compared with 4180 for the same time in 1885.

> We regret to announce the destruction by fire on the 10th inst. of the factory of the Dibble Mfg. Company, Trenton, N. J., manufacturers of Hemacite Door Knobs. In their state that they are making efforts to secure a new working organization, and intimate that in about 10 days they will be in a position to fill orders promptly.

The Ireland Mfg. Company, Cincinnati, Ohio, for whom W. H. Jacobus & Co. are agents, 90 Chambers street, New York, issue additional pages of new goods for insertion in their catalogue No. 4. It comprises a line of Bronzed Metal and Iron Tucker Bronzed Flush Bolts, Genuine Bronze Metal Bell Pulls and Bronzed and Iron Tucker Bronzed Coat and Hat Hooks, Cylinder Night Latch Door Pulls, Shutter Bars, Sliding Door Mortise Latches, Brass Shutter Sheaves and Ornamental Door Pull Handles.

WHAT THE TRADE SAY.

As the condition of trade in different parts of the country is a matter of much interest to both manufacturers and dealers, we take pleasure in giving the following extract from the letter of an Ohio Hardwareman, relating to the condition of things in his section. It will be observed that, while referring to the situation as improved and the outlook as hopeful, the irregularity of prevailing prices is alluded to:

In a general way trade has shown a very steady increase, with this one thing against it, that all combinations made by manufact-urers are more or less broken by nearly all jobbers; even in the rock-bound Sand-Paper combination you buy your 25 or 50 reams to put yourself on a good retail basis, when probably the next jobber salesman you meet will sell you three to five reams at the same discount. The general tendency, however, is toward better trade, more of it and better prices. It is true that the manufacturers' staples, such as Files and Screws, Bolts, &c., are mercilessly sacrificed, but the time must of necessity come soon when the slaughter must cease. We know personally of sales of standard makes of Screws at discount and of good qualities of Files at from — to — per cent. discount prices in a regular way unheard of. V find this fact, that the men in trade, whole sale and retail, feel better over the outlook and are freer and better buyers because of the general stagnation that has ruled here-tofore. Taken all in all, the outlook in a Western way may be summed up as exceedingly good. We, as retailers, simply ask

deliverance from cutthroat and snide jobbers and a reasonable basis of faith to work on. Writing from Nebraska, a correspondent, referring, it will be observed, to similar conditions to those referred to in the above

etter, says :

Trade is improving nicely here. feeling among customers seems to be that things have become as low as they are likely to go, and they are more willing to anticipate their wants. Some goods are a little firmer in price, while others remain as low as or lower than ever. Jobbers are anxious to reach out for new trade, and are, indeed, over-desirous sometimes to hold their old customers, which makes strong competition among them to such an extent that margins are cometimes very small. My opinion is that obbers are not having the profits they should have. They should be more united and stop

A correspondent in St. Louis, writing in regard to other topics, refers thus to the recent celebration and that city's position as a trade center :

Our conclave parade was eclipsed last night by the Veiled Prophets, who surprised even themselves when they beheld the wonderful effect of their own creation. result is that, while we have bad our city filled with visitors for the past three weeks of the best class of citizens and business men from all over the country, we are now entertaining our country cousins, greatly to their amusement and pleasure, but more so to our profit. No other city in the world offers what St. Louis does, and has done, divert the channel of trade, and slowly but surely some of the other cities will wake up to find us in the lead when the balance is made up at the and of the year. While this seem to you to be directly news, we think it has its important bearings on trade.

We have the following letter, which, besides its reference to trade, gives, it will be observed, a description of the remarkable exhibit of the Simmons Hardware Company at St. Louis :

Indian summer is giving us some beautiful weather, for which we are thankful, as the contrast between it and the hard rain and hail storms of a short time ago is very Trade is good, especially in outmarked. side work, in Tinwork and Furnaces particular change in prices to note. We are able to give a partial description of the dis-We are play of the Simmons Hardware Company at the Exposition at St. Louis. It takes up about 25 feet in length of room on the and proportionately high. The entire back-ground is dark red Across the top and bottom is mosaic-work, made of Butts, Japanned and Bronzed, placed alternately At each end of the display, above the mosaic-work, is an eagle made of Tea and Table Mass., issue a catalogue describing their Spoons, while between them stands a stalk Soft Spanish has meanwhile declined in Door Hangers, of which a detailed descrip-composed of Carpenters' Tools. Midway London from £12. 12/6 to £12. 10/, and

between the top and bottom of the display, at opposite ends, are two large wheels posed of eight Scythes each. Four of these Scythes on each wheel revolve to the right and four to the left. There are also four smaller wheels made up of Revolvers, which revolve just above the mosaic-work. At the bottom of the display is a row of silver points made of Spoons, Tea, Table and Dessert. The center of the display is the part that attracts most attention. At the right-hand corner, at the top, just below the mosaic band, is a rustic farmjust below the mosaic band, is a rustic farmhouse, with shrubs, &c., around it. This is
made of bark and wood. Before the house
and running toward the left is a river, with
falls and level water. The first section of
the river is made of coffin lace, and ends in
a fall composed of Auger Bits. Then there
is another level place made of Picture Wire,
and another fall of Augers. Here the river
turns and runs toward the right end of the
display. After the second fall the river is display. After the second fall the river is composed of Chains. These Chains pass a mill, the wheel of which is made of Knives, Butcher, Table, Pocket, &c., and Revolvers. The Chains run to the extreme right side of the display, and the river ends. The coffin lace at the beginning of the river moves, the Auger Bits of the falls turn, the Picture Wire moves, and the Augers of the second fall turn, and the Chains below the second fall move along with a noise that takes little imagination to make one fancy it sounds like water. Looking at the display from a dis-tance the river is perfect. There are other combinations on the display which fill out and complete it, into the details of which I will not go. A railing incloses a room hand-somely carpeted and furnished with commodious chairs for visitors. It is said to be the finest display ever made by the house, and is credited to the skill of Frank Wyman, who has been with the company for years.

Metal Market.

Copper.-Our market has been steady. There are buyers at 111/6 for Lake Superior on the spot and October, 1114 for November, 11.40¢ for December, and 111/2¢ from January to March, while sellers demand about 14¢ more, and for early next year's delivery as much as 12¢ is insisted upon. The turnover has been small, however, owing probably to the reaction in Chili Bars in London which have fluctuated as follows; October 6 and 7, £42. 5/; October 8, £42. 7/6; October 9, £42. 5/; October 11, £42. 2/6; October 12, £41. 12/6, and this morning, £41/10. Best Selected did not waver from £45. Messrs. James Lewis & Son, Liverpool, in their circular of October 1. say: "The entailment of the production of Arizona and Montana to the extent of about 3500 tons per month is now begining to make itself felt here, and we may consequently look for a further diminution of stocks during the present month. American consumers have paid 11¢ \$ 15 to the Lake Superior companies for their requirements during the months of October and November. This is equal to £52. 8/ ton, less 21/2 % discount, in New York, and is £4. 15/ \$\text{P}\$ ton above the price paid for the two previous months' supply. This advance is £2. 15/ greater than that which has taken place here since the previous sale was made. American arrivals in England and France for the past nine months are 15,268 tons Fine, against 26,065 tons during the same period of last year, a decrease of 10,707 tons. Messrs. Henry R. Merton & Co., London, October, make the visible supply of Copper in England and France 64,826 tons Fine, against 58,065 in 1885, 41,723 in 1884 and 50,895 in 1883, and the price of Chili Bars £41. 2/6, against £40. 15/, £54. 2/6 and £63 respectively. Export of Pyrites from Spain first seven months, 416,931, against 487,293 last year; of Ingots, 15,718 tons, against 16,415 at the Metal Exchange; 25,000 fb December Lake Copper sold at II.35#. Tin .- A fair amount of business has

taken place in this metal, fully 250 tons having changed hands, principally on spec-ulation, for delivery in November and prompt shipment from London at varying from 22.40¢ down to : up again to 22.40¢, closing, however, at 22.35¢, at which there are rather sellers than buyers. The London market has led the downward movement, owing to heavy shipments reported by cable from the East. during the first week of this month, spot Tin dropping to £101. 2/6, and three months' to £102. It, however, remains to be seen whether the high dollar price in the East is causing supplies to be pushed forward for shipment Westward to make up for the falling off during September. The spot quotation in London this morning is £101. 5/ for Straits Tin; futures unaltered at £102. At the Metal Exchange 10 tons October sold at 22.30¢. Tin Plates-Have been more active on the spot, but not higher; for future delivery 10¢ more per box has been paid. Bessemer Steel Bars have advanced 5/ in England and still tend upward. We close as follows, large lines, per box: Charcoal Bright, \$4.60 @ \$5; ditto Ternes, \$4.15 @ \$4.30; and Coke Tin, \$4.271/2 @ \$4.35, ordinary brands. At Liverpool higher prices are asked: meanwhile the quotation there is 13/3 for ordinary brands Coke.

Lead .- Sale of Common Domestic sum up 300 tons in a retail way at 4.35¢, and 4.30¢, it was rumored, had been accepted for some Lead, but this lacks confirmation. Refined is nominally worth 41/2¢, but nothing will be done therein till the White Lead Manufacturers' Convention, now in session at Chicago, shall have decided what course is to be pursued with respect to prices of their article.

higher. The t to mar compar respond 107,504 thracite is 23,19 tons for

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The sl October to that 323.716 ponding Bitum abundan ance, stances orporat Wm. D. dent, an

Old The pu are as fol

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company

Heavy Cop Light Copp Copper Boo Brass, Hea Brass, Ligh Compositio ead, Heavea Lead wrought in Light Iron. Stove Plate Washinery irate Bars White No. Anvas, Linanvas, Conductor Con Curran John, Rods, 22

Dolge A. Wire, cks., 4 Downing R. F. & Co.

English Pig from £13. 2/6 to £13. St. Louis quotes at 4.20¢ and Chicago 4.30¢. Export of Pig Lead from Spain during the first seven months 62,565 tons, against 71,138 same time last year, and 67,468 tons in 1884.

Spelter and Zinc.-Although Speltar is rising in Europe the market has remained flat here, with Common Domestic at 4.30¢ @ 4.50¢. Silesian improved from £13. 17/6 to £14 in Lonlon; is nominally worth in this market 1.80¢. We quote Bertha Refined 8¢. Sheet Zinc. -There is a fair demand for it at 5.60¢ @ 5.70¢, Domestic. Export of Calamine from Spain during the first seven months, 18,675 tons, against 22,935 in 1885, and 22,161 in 1884.

Antimony.-Cookson's brand has been fairly active, with a good jobbing demand at 91/8¢, while Hallett may be called 73/¢, being steady in London at £30.

New York Metal Exchange.

THE TOTAL MOUNT MACHINES.
The following transactions are reported: THURSDAY, October 7.
25 tons Chili Bars, November
FRIDAY, October 8.
10 tons Tin, October 22,25¢ 10 tons Tin, November 22,40¢ 10 tons Tin, October 22,25¢ 20 tons Tin, November 22,374¢
SATURDAY, October 9,
20 tons Tin, November
Monday, October 11.
10 tons Tin, November 22.40¢ 10 tons Tin, spot. 22.30¢ 10 tons Tin, November 22.40¢ 10 tons Tin, November 22.35¢ 15 tons Tin, November 22.35¢ 25 tons Tin, November 22.35¢ 25 tons Tin, November 22.35¢
Tuesday, October 12.
10 tons Tin, December
10 tons Tin, October 22,30¢ 10 tons Tin, November 22,30¢ 10 tons Tin, October 22,30¢ 10 tons Tin, October 22,30¢ 10 tons Tin, November 22,40¢ 25 tons Tin, November 22,30¢ 25,000 b Lake Copper, December 11,35¢

Coal Market

The Anthracite Coal trade is active, and a good business is looked for through the remainder of the season. The talk now is about another advance, to be agreed upon at a conference this week, but among the more conservative there is a disposition to insist upon full circular prices as they stand, rather than fix upon prices that may not be realized. Despite the admonition conveyed by Governor Pattison and the probability
that increased prices will be followed by
demands for larger wages, as in the case
of the Hazelton operators a week ago, there are some who advise a contrary course. The demands of consumers so nearly correspond with the rate of production that Mach'y, pkge.. 1 increased allotment for the current British West Indies. month is spoken of as possible. Some sizes are in short supply, but not to affect manufacturers aside from the deficiency of cars. As the transportation companies in several instances have a Coal company as a sort of tender, the suggestion is sometimes heard that the scarcity of cars complained of may be artificial, in the interest of producers. Free burning White Ash is quoted: Broken, \$3.55; Egg. \$3.80; Stove. is quoted : Broken, \$3.55; Egg, \$3.80; Stove, \$4.15; Chestnut, \$3.65; Pea, \$2.10. Pitts-ton averages about 10¢ \$\mathbb{P}\$ ton lower, and Reading, Broken and Egg are 20¢ \$\mathbb{P}\$ ton Mf. iron, pkgs \$\mathbb{T}\$.

higher.

The total amount of Anthracite Coal sent to market for the week was 687,555 tons, compared with 795,059 tons in the corresponding week last year, a decrease of 107,504 tons. The total amount of Anthracite mined thus far in the year 1886 is 23,197,175 tons, compared with 22,405,613 tons for the same period last year, an increase of 791,562 tons.

The Pennsylvania Railroad reports that the total Coal tonnage of this year is 8,632,502 tons. The company's line into the Schuylkill region, with a connection in the Lehigh Valley, will be completed 20th inst.

The shipments from the mines of the Cumber of the Cumber of the Carbon of the

erland Coal region for the week ending October 2 were 76,492 tons, and for the year that date 1,755,957 tons, a decrease of 323.716 tons as compared with the corresnding period of 1885.

Bituminous is about \$3.25 alongside, the abundance of supplies foreboding an advance, which manufacturers in some instances are not slow to perceive. During the week the Clearfield Bituminous Coal Corporation organized at Clearfied, with Wm. D. Kelly, of Elmira, N. Y., as president, and Gen. J. C. Langdon as chairman of the board. The capital of the original company is reduced to \$1,670,000.

Old Metals, Rags, &c.

The purchasing prices offered by dealers

Heavy Copper
Light Copper
Copper Bottoms 2 75, 6 .06
Brass, Heavy 9 10, 05
Brass, Light 12 D 65 .04
Composition, Heavy 2 b, 6 .07
lead, Heavy 1 10, \$0.04 6
Tea Lead
Zinc 08 0 .0034
Wrought Iron
laght Iron ton, 0 9.00
Stove Plate Iron
Machinery Iron 14.00
Grate Bars ton. 5.00 @ 6.00
White No. 1 2 20, .09% @ .0934
White No. 2 101% @ .01% @ .01%
Canvas, Linen. No .1 D0414 @ .0432
Canvas, Cotton, No. 1 9 2, .0434 @ .0434
Canvas, No. 2 9 b, .0002 @ .0012
5-conds 9 b, .01 6 .0112
Soft Woolens 10 10,0534 @06
Mixed Rags 01 @ .0144
Junny Bagging, No. 1 # 10, .01 9-16 @ .01 11-16
ute Butts
Book Stock 10 10, .00% @ .01%
Newspapers
Waste Paper
Kentucky Bagging 9 b, .0214 6 .0214
Aentucky Bale Rope 9 D, .08% @ .04
Kentucky Bagging 10 10, .0014 @ .0008
tond in the state of the state

Exports.

The following table presents the Exports of Hardware, Iron, Steel, Metals, &c., from the port of New York, for the week end-

	a, for the we	POL	611
idles.	Havr	e.	
	Q	ıan.	V
	Sew ma., cs	24	1,8
1 17	Hdw., cs	6	8
ndies.	Guns, case	1	
	Mach'y, pkgs.	2	8
	Porto B	tice.	
	Mach'y, pkgs.	46	1,1
	Mf. iron, pkgs	119	6
	W. clos., pkgs	12	1
	Tinware, cse.	1	
	Ag. imp. pkgs	- 5	1
	Nails, kegs	100	2
	Clocks, es	2	
O MONTH	Pumps, pkgs.	- 2	
1 91	Boiler	1	6
	Mf. iron, pkgs	34	8
	Scales, cs	7	1
	Hdw., cs		
4 6.309	Nails, cs	3	
5 160		ms/.	
			4
1 100	Revolvers on		2.1
	1886: adies. 1 Val. 8 1 138 1 17 adies. 1 40 9. 7 619 5 17,191 1 1,092 4 111 7 315 1 2,036 8 2,044 1 31 1 51 4 6,309 5 160 8 100 1 100	1886: adies. 1. Val. 8. 138 138 Sew ma., cs., 17 Hdw., cs., 18 17 Hdw., cs., 19 17 Howers, 19 17 Howers, 19 17 Howers, 19 17 Howers, 19 18 19 19 19 19 19 19 19 19 19 19 19 19 19	## ## ## ## ## ## ## ## ## ## ## ## ##

Mach'y, pkge. Iron tanka... Hdw., cs..... Wringers, cs.. Mf. iron, pkgs Firearms, cs.. 101,000 19 1,192 2 35 5 125 4 411 Revolvers, cs. Mach'y, pkgs. Sht. iron,pkge China. Copenhagen. San Domingo Hdw., cs. Sew. ma., cs... Hdw., cs.... 4 76 Clocks, cs... 10 100 Guttenburg. w., cs..... 85 1,227 Sew. ma., cs...
Ag. imp., pkge
Nails, kegs...
Mach'y, pkgs. 1
Iron, pkgs...
Tinware, cs...
Hayti. Hdw., cs..... Rotterdam. Hdw., cs..... 5
Ag imp.,pkgs 2
Mach'y, pkge. 1
Liverpool. Nails, kegs.... Sheet iron, 83

pkgs..... Tinware, cs... 110 1,748 1,807 5,642 Brasil.

Hdw., pkgs... 596
Cutlery, cs... 10
W. goods, cs... 2
Nails, kegs... 432
Cartradges, cs. 13
Mf.iron, pigs. 149
Cotton gins, cs. 33
Print, press... 1
Buckles, case... 1
Turntables... 2
Stamp'g dies,
case... 1
Mach'y, pkgs. 27
Ag.imp., pkgs. 114
Clocks, cs... 33
Guns, cs... 12 Brazil. 789 24 1,502 1,462 6,076 8,375 892 400 2,380 Amsterdam. Hdw., cs..... 15 Mf.iron, pkge. 1 275 5 Antwerp. Clocks, cs...
Guns, cs...
Iron safes...
Shoe nails. cs.
Pumps, pkgs.
Tinware, cs...
Tacks, cs...
Revolvers, cse
Agate ware, cs

Revolvers,cse 1 Glasgow. Hdw.. case... 1 Cartridges, cs 4 Arms, case... 1 Hull. Ag.imp., pkgs 12 Hdw., pkgs. 179
Wringers, cse. 1
Mf.iron, pkgs. 58
Clocks, pkgs. 342
Saws, case... 1
Ox. zinc, bbls 100
Cartridges, cs. 11
Sew. ma., cs. 330
Ar.imp. pkgs. 35 London. 4,916

French West Indies.

34

6,200

Tinware, cs... Sew. ma., cs.. Hdw., case... Lisbon.

Ag. imp.,pkgs 19
Hdw., pkgs... 13
Railroad cars 7
Cartridges, cs 11
Locomotive... 1

Cartridges, cs. 11
Locomotive... 1
Railroad cars... 3
Mf. iron, pkgs... 2
Tacks, cs.... 12
Table expanders, box.... 1
Sew. ma., cs... 41
Mach'y, pkgs... 18
Metal g'ds. cs. 2
Cutlery, cs... 41
Pumps, pkgs... 5
Boiler... 1

Argentine Republic.

Argentine Republic.
Mach'y pkgs. 73 4,121
Clocks, cs.... 129 2,452
Pumps, pkgs. 2 44
W. mills, pkgs. 73 2,419
Az.lmp..pkgs1.218 7,389
Hdw., cs.... 389 3,969
Mf.tron, pkgs. 5 175
Sew. ma., cs.. 131 2,179
United States of

Colombia.

Mexico.

Wire cloth, cs 3 287 110 British Guiana. Pumps, pkgs. 2 Hdw., pkgs... 46 Tinware, cs... 9 Cartridges, cs. 4 Windlass..... 1 55 660

Colombia.

Hdw., pkgs... 522 5.845
Mf. iron, pkgs 361 2,859
Cutlery, pgs. 44 1,341
Ag.imp., pkgs 19 115
Firearms.cs. 7 381
B. metal. cs... 4 100
Tinware. cs. 28 508
Jacks, cs... 8 500
Shot, case... 1 17
Tin shingles, cs 358 1,066
Rivets, kegs... 32 125
Clocks, cs... 2 40
Sew. ma., cs. 40 818
Mach'y, pkgs. 101 7,473
Quicksilver,
flask... 1 250
Carbines, cs. 9 224
Nails, cs. 79 2311
Iron, pkgs... 2,871 7,222
W. coolers, cs. 10 185
Nails, kegs... 73 192
Steel, pkgs... 3 408
Wire cloth, cs. 4 408
Wire cloth, cs. 1 16
Central America. Cuba. Mach'y, pkgs. 230 Springs, case. Metal gds.,cse Tinware, cs... Nails, ca.... Nails, pkgs.... Nails, pkgs.... Central America. Mf. iron, pkgs 11 Sew.ma., case 1 Sew. ma., cs.. Tacks, cs.... Tin plates, cs. Japan. Hdw., cs .. Boilers...... 2 Mf. iron, pkgs 422 Venezuela. Clocks, pkgs... 12 Hdw., pkgs... 119 Wire gds., cs. 8 Br. woods, cs. 9 Natis keep 198 Br. goods, cs.
Nails, kegs...
Cutlery, cs...
Steel, pkgs...
Valves, case...
Arms, case...
Pumps, pkgs.
Wire cloth, cs

Imports.

The following were the Imports of Hard ware, Iron, Steel and Metals into the Port of

	New York for the	week ending October
Printed and the second	Brown Bros. & Co. Packages, 92 Cases, 6 Buckley J. H. & Son, Mach'y, ca., 308 Davies, Turner & Co. Case., 1 Field Alfred & Co. Mdee, cs., 5 Cases, 8 Guns, cs., 2 Fitzpatrick J. Nails, bbls., 2 Folsom H. & D. Arms, cs., 7 Gurney Fred. B. Cutlery, cs., 2	Hartley & Graham, Arms, cs., 20 Mdse, cs., 20 Mdse, cs., 11 Judd H. L. & Co. Nails, cs., 7 Karcaer Ph. H. Machines, cs., 9 Kastor A. Mdse., cs., 6 Knauth, Nachod & C Mach'y, pkgs., 2 Cases, 30 Lau J. H. & Co. Arms, cs., 2 Newton & Shipman, Files, cks., 2 Patton, Vickers & Co. Cases, 2 Roy R. & Co. Mach'y, box, 1
į	Cases, 3	Mach'y, pos., 4

Sellers W. B. Cutlery, Schoverling A Arms, cs., 11 Schoverling, Daly Gales, Gales, Arms, cs., 11 Mdse., cs., 7 Underhill, Clinch & Co. Jackson B. D. & Co.
Tubes, cs., 9
Laxard Freres,
Wire, pkgs., 10
Newton & Shipman,
Plates, 144
Cask., 1
Case, 3
Bundles, 50
Bars. 10
Plditch F. S.
Bundles, 158
Cases, 4
Power C. W.
Cases, 9
Sellers W. B.
Case, 1
Temple & Lockwood,
Bundles, 55
Bars, 56
Wagner W. F.
Wire, bolls, 2
Bundles, 231
Bars, 42
Cases, 19
Order.
Billets tone 2017

Underhill, Clinch & Co Casess, 2 Vom Cleff & Co. Mdse., cs., 47 Wiebusch & Hilger, Mdse., cs., 16 Arms. cs., 2 Witte John G. & Bro. Cutlery, cs., 2 Order. Order, Mach'y, pes., 6 Arms, cs., 10 Iron.

Abbott & Co.
Spiegel, lot, 1
Baring Bros. & Co.
Bundles, 270
Coils, 1872
Brown Bros. & Co.
Rivet rods, tons, 73
Coddington T. B. & Co.
Sheets, bdls., 183
Crocker Bros.
Pig. tons, 200
Ferro iron, tons, 86
Spiegel, lot, 1
Spiegel, lot, 1
Davies, Turner & Co.
Sheets, cs., 24
Drexel, Morgan & Co.

178 Sheets, cs., 24 Drexel, Morgan & Co. Pig, tons, 200 Goldschmidt, Chas, J.

Pig. tons, 200
Goldschmidt, Chas, J.
Iron cylinders,bxs.,6
Henry A. T.
Pig. tons, 100
Lazard Freres,
Wire rods, pkge., 957
Rods, coils, 7551
Lillienberg N.
Bars, 75
Lundberg Gust.
Coils, 438
Merch. Desp. Co.
Wire, coils, 84
Naylor & Co.
Coils, 388
Pierson C. L. & Co.
Pig. tons, 205
Stetson Geo. W. & Co.
Pig. tons, 205
Tackray & Co.
Boiler tubes, 2
Cart axles, 2
Ward Jas. & Co.
Old iron, kg., 34,400
Wells, Fargo & Co.
Bars, 275
Williamson J. & Co.
Pig. tons, 200 284 Willian liamson J. & Co. Pig, tons, 200 266 5,326 1,803 845 174 299 32 677 457 178 198 75

Order. Wire rods, coils, 18, Old rails, tons, 840 Old rails, tons, 840 Crop ends, tons, 812 Wrought tubes, 110 Sheets, pkgs., 5247 Spiegel, tons, 1875 Tons, 787 Rail crop ends, lot, 1 Rods, pkgs., 15, 264 Rods, colls, 22, 198 Ore, tons, 289 Rings, bdls., 10 Rods, bdls., 445 Wire, cks., 15

Steel Abbott Jere & Co. Cases, 2
Baring Bros. & Co.
Billets, tons, 420
Cary & Moen,
Bundles, \$65
Crabb W. & Co.
Wire, bdls., 78

Percussion caps.

Percussion caps
Pins
Quicksilver
Regulus antimony.
Saddlery
Steel.
Type metal
Tin, bxs.
Tin, slabs, 5,846.
wire

The imports of Cutlery, Hardware and Metals at this port for the week ending October 8 were as follows: Quantity. Anvils... Antimony.... Brass goods... Bismuth Chain and anchors Guns..... Hardware.... Hardware.
Iron, pig, tons.
Iron, spiegel, tons.
Iron, spiegel, tons.
Iron ore, tons.
Iron, tubes.
Iron, other, tons.
Lead, pigs.
Machinery.
Metal goods.
Nails.

Zinc, oxide.... The obsolete English ironclad Resistance of gun cotton was fired within 30 feet of the ship's side without serious effect. She was next attacked by an old 16-inch Whitehead while protected by wire nets supported by 30-feet booms. The nets exploded the torpedo and the vessel remained unburt, only one boom was unshipped and the net not extensively injured. The value of the nets having been shown, a charge of gun cotton representing that of a Whitehead torpedo was exploded 20 feet from the vessel without inflicting perceptible damage. At 15 feet the vessel was strained and began to leak, some of the compartments being filled and water finding its way into the bilge.

An oil lamp in Ames & Co.'s iron rolling mill and iron foundry, Jersey City, exploded on Tuesday evening and set fire to the build From the rolling mill the flames ing. spread, and in a few minutes one-half of the block was on fire. West of the mill was William Harris's blacksmith and machine shop, a one story frame building, which was also destroyed, and George Smith Hudson's iron foundry shared the same fate, as well as the Standard Wood-Turning Works. Ames & Co.'s mill was filled with valuable machinery and their loss is estimated at \$70,000, while the total loss will probably exceed \$100,000. Ames & Co. inform us that their work will not thereby be interrupted, and that they are prepared to answer all orders for spikes, bolts, splicebars, &c., with their usual promptness.

Business failures as reported during the week are about up to the average for some time past, but light in New York and the

Old ships converted into coal barges by the Boston towboat owners are encroaching upon the business lately done by coastwise

WASHINGTON NEWS.

(From Our Regular Correspondent.)

WASHINGTON, D. C., October 12, 1886. Chief Naval Constructor Theodore D. Wil son, of the United States Navy, said to the correspondent of The Iron Age to-day in regard to the progress being made in preparing for the building of new ships:
"The department has received communi-

cations from all the great establishments in the United States. The ships now adver-tised and for which we ask proposals are four under the act of 1885, one 870 tons, one 1700 tons, one 3730 tons and one 4083 tons, and one under the act of 1886, an armored cruising ship of 4413 tons. The plans for these ships are required by law to be the work of American naval architects and engineers. Impression has gone abroad that foreign builders and constructors can That is a mistake. The recepcompete. tion of plans from abroad applies only to two ironclads, and it is optional whether these shall be received. In anticipation of having no proposals for the construction of the one armored cruiser and one armored battle ship, each of 6000 tons, this bureau is now engaged in preparing its own plans for those vessels, which, however, have not yet been advertised."

"Has the Government the facilities for building these ships i"
"They can be constructed in the New
York or Philadelphia navy-yards at as little

cost and just as well as in any private yard. For that matter, all the ships could be built

in the Government vards if the Government

desired to do so, but where the cost is no greater and the work is as well executed

there is an advantage in building some of

Government to do the work, but I have had

Metals. Brown Bros. & Co.
Tin plates, bxs., 159
Bruce & Cook.
Tin plates, bxs., 500
Byrne Jos. & Co.
Tin plates, bxs., 1000
Caswell C. A.
Silver-lead ore, cks., 188
Dickerson, Van Dusen & Dickerson, Van Dusen &

rder. Billets, tons, 2917

Bars, 504 Rods, bdis., 10,367 Wire rods, rings, 37,844

37,844
Forgings, cs., 37
Wire rings, 5615
Forgings, 116
Bands, 159
Packages, 6
Tubes, cs., 4

Co.
Tin plates, bxs., 1050
Field Alfred & Co.
Per caps, cs., 2
Gould R. S.
Brass foundings,
cs., 6
Hendricks Bros.
Tin, bbls., 25
Kearney A Tin, bbis., so Kearney A. Old metal, bbis, 3 Lamarche A. & Sons, Mdsc., cs., 25 Lazard Freres, Tin, slabs, 478

Phelps, Dodge & Co.
Tin plates, bxs.,
Pim, Forwood & Co.
Old copper, bbls., Pim, Forwood & Old copper, bbis., 9 Old copper, bbis., 9 Old metal, drum, 1 Schepp L. Old metal, bdls., 2:00 Old metal, bdls., 2:00 boverling, Daly & Schoverling, Daly & Gales, Per. caps, cs., 4

Tin plates, bxs.
7344 Antimony, bxs., 15 Tin slabs, 5119 Tin, cs., 15 Lead, pigs, 814 Tin. ingots, 1466 Quicksilver, bottles, 750 For instance, ships cruising in the West Indies would find it very costly and inconvenient, and it might be impracticable to come to New York for repairs. The Pensa-Nickel, cks., 8 Speiter, plates, 4192 cola yard would be most convenient then; so with the yard at San Francisco and

29,974

others; but for construction of modern vessels of war requiring steel and iron in great quantities the yard ought to be in the vicinity of the unwrought materials of mod-ern shipbuilding." "To secure such conditions what would "To secure such conditions what would be the best location?"

"In my opinion League Island, in 'the Delaware. The Brooklyn yard has good facilities for securing all necessary supplies of iron and steel, but it is too circumscribed in area and too much hemmed in on the water side by the requirements of navi-gation in the bay and on the East River to afford the necessary room for the shops and other works necessary for steel shipbuilding. The League Island yard has not only greater facilities for the supply of materials, but it has every variety of mineral and vegetable fuels in close proximity, and is sufficiently remote from the seacoast to be 5,864 5,817 absolutely secure. In adverting to the advantages of League Island I am simply reiterating the opinions of such men as Admiral Porter, Vice-Admiral Rowan, Chief Naval Constructor John Lenthall, Chief Engineer W. King and many others. It will rest with the Secretary of the Navy to say whether the two armored vessels of 6000 tons shall be built in the Government yards. This will be determined after the plans for the five vessels now advertised for proposals

are received. There is no doubt that plans for these five ships will be invited, but I Statements which have been purely spec ulative have been circulated to the effect that the invitations for bids for the new cruisers and gunboats of the navy have met with no response. The facts are that the interest displayed by naval architects, contractors and engineers in their inquiries after information, indicates that there will be no lack of competition for the privilege of constructing the new vessels for which

MISSTATEMENTS CORRECTED

proposals are asked. As a further evidence of the interest felt in shipbuilding circles, it may be said that several mouths before the formal invitations for bids were made pub-lic the plans for hull and machinery of the cruisers and gunboats which were on exhibition in the office of the Secretary of the Navy were examined by expert constructors representing the shipbuilding interests of C. H. Cramp & Co., of Philadelphia; Harlan & Hollingsworth Company, and the Pusey & Jones Company, of Wilmington, Del.; the Union Iron Works, San Francisco, and other leading firms engaged in shipbuilding or in the construction of machinery for sea-going vessels. Nearly, if not quite, all of going vessels. Nearly, if not quite, all of the leading ship and marine engine builders in the United States have applied for and have been furnished with specifications and with such additional information as they desired. THE OUTER COVERING CLAIMS.

articles, like the cans for preserved fruits, vegetables and meats, &c., are not liable to the duty of 100 per cent. All rulings of a contrary tenor have been revoked. In regard to bottles the Solicitor of the Treasury and the United States Attorney-General have decided that no reduction in the for eign market value of ginger-ale can be made for the cost of bottles or otherwise, and that duty accrues on the foreign wholesale price or market value of such merchandise in the bottled condition.

RECENT DECISIONS.

Certain chisels, gouges, plane irons and tooth irons, being finished edge tools, excepting that they are not sufficiently sharp for immediate use, are not "forgings of iron and steel" within the meaning of that term as used in Schedule C, T. I., new, 167, but are dutiable at the rate of 45 per cent. ad valorem, under the provision in said schedule (T. I., new, 216) for "manufactures, articles or wares not specially enumerated or provided for * * * composed wholly or in part of iron * * steel," &c.

ORDNANCE MANUFACTURE. The activity in several ordnance circles has raised a spurt in ordnance quarters of the army. The old-fashion cast-iron gun of the army.

obsolete patterns is still the only class of heavy ordrance used. There is some talk of turning the fabrication of siege and seacoast-guns for the army over to the navy. That branch of the service is far in advance of the army, and is now likely to increase the disparaging comparisons already in circulation between army and navy ordnance, and in favor of the latter.

The firm of Cary & Moen. 232-238 West Twenty-ninth street, New York, consisting of Alanson Cary and Edward A Moen, who have been manufacturing steel wire them in private yards from the fact that it encourages and expands the shipbuilding industry of the country. Of course private establishments dispute the ability of the and steel springs for 11 years as successors of West, Bradley & Cary, found themselves embarrassed, and called a meeting of their creditors to decide upon what should be done. The meeting was held Wednesday morning of many years' service at Government yards, have a knowledge of the capabilities of all the large private yards, and have had five or this week and comprised about two-thirds of six years' charge of this Bureau of Construction and Repairs. I ought to know something about the subject. I think the Government should have one large yard combining in itself the advantages and the creditors. Mr. H. K. Thurber, a director in the Importers' and Traders' Bank, acted as chairman, and W. F. Osborne, of the firm of Osborne & Cheesman Company, Ansonia, Conn, as secretary. The committee unanimous agreement recommended combining in itself the advantages and facilities of the finest private and all the Government yards. The department has assigned the Washington yard to the Bureau of Ordnance for the manufacture of the firm pay 55 per cent. of their indebtedness, and that an extension of Bureau of Ordnance for the manufacture of modern high-power naval guns. It will be in, the payment to be made in notes. Bureau of Ordnance for the manufacture of in, the payment to be made in notes. Bureau modern high-power naval guns. It will be in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in, the payment to be made in notes. Bureau in the payment to b den emergencies of vessels coming in the vicinity of various points along the coast. For instance, ships cruising in the West will continue running without interruptions. tion, and we are informed that the business of the concern at present is exceptionally active. The members of the firm feel sanguine that they will be able to meet the wishes of their creditors, and hope to pay their debts in full eventually. creditors present at the meeting expressed the kindliest feelings for Messrs. Cary & Moen in their embarrassment, and one as all expressed the desire that the firm would continue purchases from them on the same terms as heretofore.

The Railway Telegraph and Telephone Company, of New York, have closed a con-tract by which the Chicago, Milwaukee and St. Paul Railway Company adopt the Edison-Gilliland-Smith system of telegraphing between moving trains and stations. The Council Bluffs division of this road is equipped, and the remainder of the road is to be at once fitted with it. Though details of the invention have been published in full, we will repeat briefly that it consists of having telegraphic instruments on one car of each train and making use by induction of the ordinary telegraph wires at the side of the track without interfering with the regular traffic over the wires. The Chicago, Milwaukee and St. Paul Railway Company are the first Western road to adopt this

The question of utilizing lighthouses and light-vessels as signal stations in telegraphic communication with each other, and connected with a central station for reporting arrivals, departures, casualities and meteor-ological observations, has for some time rehas been subjected to further experiments, doubt whether private yards could handle this time with torpedoes. A 50-pound charge them." in this direction as regards lighthouses may be mentioned Canada, which has a large proportion of them so arranged. In Ireland the experiment is being made at Fa-tnet, a well-known exposed rock station off Cape

> Chinese crews are employed with profit on the North Pacific. Captain Brown, of the British bark Omega, at Vancouver British Columbia, says his crew, consisting wholly of Mongolians, each receive \$5 per month wages, and that the food for each man for the same period costs only \$1.50.

> A steam barge has been built at Suffolk. Va., which is 167 feet long, 22½ feet beam and 8 feet depth of hold. It will carry 200,000 feet of lumber on 6 feet draft, and has two masts, schooner rigged, to be used as auxiliary power when wind is favorable.

> Recent experiments made by Profs. J. J. Thomson and Threlfall have brought them to the conclusion that, just as ozone is formed by the passage of electric sparks through oxygen, so an allotropic modification of mitrogen is formed by sparking in nitrogen.

Wm. Frerret, the New Orleans architect selected by President Cleveland as the suc cessor of Supervising Architect Bell, of the Treasury Department, is a Creole about 40 years old, and has been among the most The judicial decision exempting outer successful architects in the South

coverings from duty has become such a nuisance to the department through foreign A committee of the Philadelphia Councils unanimously report in favor of leasing the city gas works. This property is valued at \$12,553,000 and the apparent net profit last year was \$239,000, but should the conshippers and domestic importers, who are using it in every conceivable shape to evade duties, that an effort will be made to have some specific action by Congress defining the operations of this ruling. The Attorney General has just decided that a long list of coverings for certain enumerated margin will be entirely wiped out.



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Knife Handle

Screw Wrenches

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Sliding Door Hangers,

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TRANSOM LIFTER,

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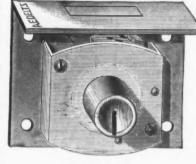
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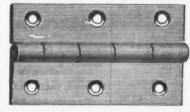


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No Cross Joints, Un-affected by Damp. Clings well to the Pulley, Has no equal. In fact, is THE BELT.

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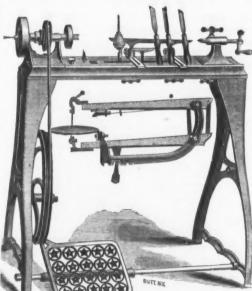
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Many kinds of Scroll Saws have been put on the marset by our selves and other manufacturers during the past twelve years. Of these only a few have proved good eno 'gh to remain in demard. The call no w is for a well-made, practical machine, and all second-lass ones are of slow sale.

Those who want a good La he with 'croll-Sawing Attachment and all Tools and Improvements to the very latest moment will buy the Goodell Lathe.

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These two machines are taking the place of all others and are now the most in demand throughout the world.

the most in demand universely world No dealer can make a mistake by laying in a stock of them. About Christmas time they are wanted in every town, and will make business lively at this otherwise duly of the control o season. We also keep a full stock of Designs, Wood, and all other Scroll Sawing goods.

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Forged Horse MANUFACTURED BY THE NATIONAL HORSE NAIL CO., Vergennes, Vermont. HOT FORGED AND COLD HAMMERED POINTED MADE OF BEST NORWAY IRON AND WARRANTED. WAREHOUSE 97 CHAMBERS AND 81 READE STREETS NEW YORK.

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ALSO BEST QUALITY HOMOGENEOUS STEEL PLATES.

We ask the special attention of the trade to our C. H. No. 1 Boiler Plates, which we manufacture expressly for the Shells of Steam Boilers and stamp 50,000 pounds T. S. when desired. One hundred and sixteen tests of this iron, made during the last three years by the U. S. Inspectors of Steam Vessels, show an average tensite strength of \$8,808 pounds to the sectional square inch, and an average reduction of area of the fractured section of \$9% per centum. Our prices are as low as the production of a good article will admit of.

TSVILLE IRON & STEEL CO...

Viz., BEAMS, CHANNELS, TEES, ANGLES, PLATES AND BARS; Also STEEL AND IRON AXLES FOR FREIGHT AND PASSENGER CARS.

This Steel is manufactured by the CLAPP-GRIFFITHS process, and is specially adapted, in addition to the above, for Boller and Bridge Rivets. Wire Rods, Nail Plates, &c. &c. Our Mild Steel is well adapted for use in place of the best quality of Wrought Iron; where a greater strength and ductility is required, it welds readily as Iron. Also Billers, Slabs of all sizes and any desired temper. Shafting of all sizes in stock, from which prompt shipments can be made.

Brewery, Malt and Ice House Construction a Specialty.

Hermann-Parker Hardware Mfg. Co., MANUFACTURERS OF

Our Specialties: Axle Pulleys, Well Wheels, Grind-

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MECHANICAL.

Fan Engine and Fan for Torpedo-Boats.

We reproduce on this page from Engineering a sectional elevation and an end view (the latter with steam chest cover removed) of the fan engine and fan used by the well-known English builders Messrs. Yarrow in their first class torpedo-boats, to maintain the air pressure in the stokehold, by means of which the draft of the furnace is aug-mented. The arrangement is very similar to that first adopted by Messrs. Thornycroft to enter the boiler the water level remains | face and the economy of this form of boiler, runs all day, but only consumes an appreciable

possible for the boiler to have a pressure on the outside, but it is not possible to produce any on the inside. Should there be any leakage of water from the boiler the deficiency is made up automatically by a very simple contrivance. On the side of the condenser casing is a small water-pocket made to receive the discharge from the air pump. From this water-pocket the water enters the boiler through a small float chamber, the boiler through a small float chamber, the float maintaining the water line constant.

the fire-box of a locomotive boiler does by far the greatest portion of the work in raising steam. The boiler under notice has no line that of the fire-box, electric motor, scarcely 3 feet tall, and but the fire-box is so constructed that a great portion of the heat of the spent gases is trapped by the green fuel which is ap proaching the condition of combustion in the fire-box. So completely is the waste heat utilized that it is possible to put one's hand into the top of the boiler and take out lumps of coke, even when the coke is nearly half-way down in the fuel space. The author heating surface except that of the fire box, but the fire-box is so constructed that a great A communication is made between the small water-pocket and the condenser casing. As long as the quantity of water entering this has not had time to make careful quantitative hydraulic elevators under either the

any angle. It can be held in any position on the trunnion by clamping the body of the vise with the two nuts shown in the cut. A graduated dial on the trunnion marked "degrees" gives the angle to which the vise can be thrown, facilitating the milling or plan-ing of pieces at an angle. The jaws, of hardened steel, open 8 inches, with a depth of 2 inches. Machinery of the Yacht Alva.

The new steam yacht Alva, built for Mr. William K. Vanderbilt, by the Harlan & Hollingsworth Company, of Wilmington, Del., is entirely of the best quality of steel—both ribe and shorting for the steel of the steel both ribs and sheeting. She is 285 feet long over all, 252 feet on the load line, 32-foot 3inch beam, and 21-foot 6 inch depth of hold. She is built for classification in the highest class of the English Lloyds. She will be rigged as a three-masted schooner, with square topsail on the foremast. The propeling machinery will consist of an inverted double-action surface condensing threedouble-action surface condensing three-cylinder compound engine, the high-press-ure cylinder being placed in the center and the low-pressure cylinders at each end. The high-pressure cylinder is 32 inches in diameter, and the low-pressure cylinders each 45 inches; the stroke is 42 inches. Besides this engine there will be reversing engines, pumping engines, turnover engines, engines for working the steam steering gear, windlasses and electric-light machines, and for numerous other purposes in handling the ship. The propeller is a solid casting of manganese bronze made in Scotland. It has four blades, and is about 10 feet in diameter. There are two boilers of the circular single-end horizontal tubular patcircular single-end horizontal tubular pat-tern, with four patent corrugated furnaces in each. They are made of the finest steel plates, z inch thick, and are 17 feet ir diameter and 10 feet long. They will stand back to back, with a fireroom at each end. They are built to stand a working pressure of 100 pounds to the square inch. Besides these there is a donkey boiler for working the donkey and hoisting engines when steam the donkey and hoisting engines when steam

is not up in the main boilers Ice Machines. In his interesting address before the Section of Mechanical Science and Engineering of the American Association for the Advancement of Science, Vice-president Octave Chanute gave some interesting infor-mation in tracing the ice machine through the various stages of evolution to its present state of development. Beginning with the purely hypothetical statement of the production of a reduced temperature by means of combustion of fuel, Professor Cullen, of of combustion of fuel, Professor Cullen, of Glasgow, in 1755, declared that quickline and spirits of sal ammoniac constituted the best method of producing artificial cold. These discoveries remained mere laboratory experiments until 1834, when Jacob Perexperiments until 1934, when Jacob Ferkins made the apparatus for producing ice by the volatilization of sulphuric ether. Following him were other inventors, each adding their monty to the experience and sum of human knowledge upon the subject; among them were Twining, Leslie, Valance, Harrison, Pontifex, Siebe, Windhausen, Tellier, Carré and Pictet. In 1869 an inventor determined to produce a successful ice machine, and read everything on the subject contained in a public library, learning the methods employed by his preducessors and the elements of their success and failure. This logical method of procedure resulted in the invention of the anhydrous ammonia process, which was put into practical operation in 1874. Another successful ice machine was produced a few years later, as the joint result of work by a practical mechanic, a chemist and a patent solic-There are several hundred ice machines used in the United States, and they have reached a degree of economy which may be reached a degree of economy which may be estimated by the statement that as much refrigeration is produced by the combustion of I ton of coal as from the melting of 20 tons of ice. This same principle of refrigeration by the expansion of gas is used by brewers around Pittsburgh, U. S. A., where the refrigeration in the expansion of natural gas is used for coaling temperature.

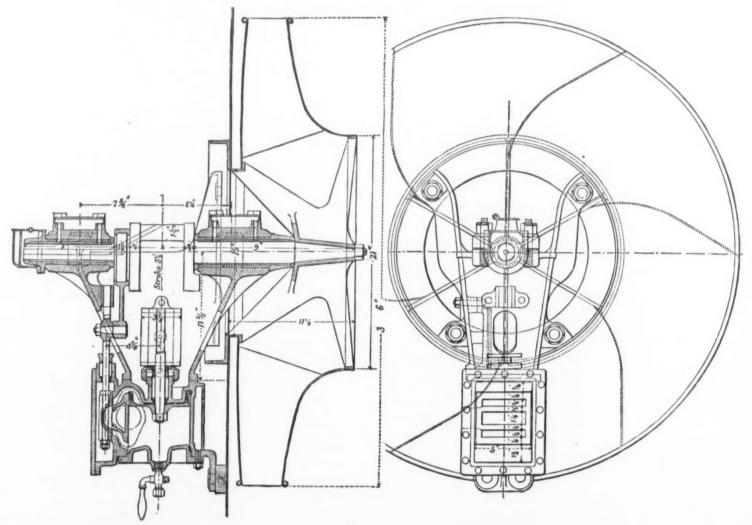


Fig. 1.—Section and Elevation.

Fig. 2,-Side Elevation

FAN AND ENGINE FOR TORPEDO-BOATS.

the other side of the fan, which is in direct communication with a deck cowl. This plan tends to balance the end thrust on the fan spindle, and by it a good means of venti-lating the engine-room is secured. The lubrication of the crank-pin, eccentric, &c., is obtained through a hole in the shaft, the centrifugal motion causing a continual supply of oil to find its way to the working The after extremity of the shaft is completely immersed in an oil-box. In some of Messrs. Yarrow's second-class torpedoboats they adopt unpacked piston-valves, an arrangement which they consider an improvement on the slide-valve. The fan is made of steel plates, 18 B. W. G., which are hammered cold into shape.

The Davey Motor.

In a paper recently read before the Me-chanical Science Section of the British Association for the Advancement of Science Mr. Davey thus described the domestic

motor designed by him:

Briefly stated, the motor is a steam en box, the space between the fire-box and shell being filled with water up to a certain hight. In the space forming the upper part of the boiler is inclosed a steam cylinder. The piston-rod passes out through the boiler, and is attached to a crosshead giving motion to a crank-shaft carrying a fly-wheel. At the back of the boiler is an upright casting containing a surface condenser. The condenser is surrounded with water, and at the bottom is connected to a small air pump employed to pump the water formed by condensation from the condenser, and to return it again to the boiler, so that and to return it again to the boiler, so that the same water is used over and over again. At the top of the boiler is an escape-valve communicating with the chimney. The water is raised to boiling point as it is in an ordinary tea-kettle. If the engine is not at work the steam escapes up the chimney without producing any pressure in the boiler whatever. The steam cylinder is then completely surrounded with steam, and on turning the fly-wheel around by hand the forward movement of the piston causes the steam to enter the cylinder. On the return of the piston the steam discharged into the condenser and omes condensed, forming a vacuum, on which depends the whole power of the en-gine. Immediately the vacuum is formed the engine commences to work of its own accord. The vacuum obtained is from 26 nches to 28 inches of mercury, equivalent of from 13 pounds to 14 pounds per square inch on the piston. A throttle-valve is placed over the admission port to the cylinder of the admission port to the cylinder of the amosphere. The object of the valve on the top of the boiler is mot that of a safety-valve, but of a non-return valve, to prevent the admission of air when the pressure is below that of the atmosphere. It is selected a safety-valve, but of a non-return valve, to prevent the admission of air when the pressure is below that of the atmosphere. It is selected as sel The vacuum obtained is from 26

below that in the condenser casing, thereby causing the deficiency to be supplied from the latter. It will thus be seen that the contingency of a loss of water from the boiler by leakage is provided for, and is supplied auto-

matically.

All the functions of the engine are automatic, with the exception of feeding the ire. The fire-box is made large, so that the fire does not require to be frequently stoked. It will be obvious enough that, assuming the boiler to be exposed to an in-ternal pressure of 2 or 3 pounds to the square inch, it would be beyond all risk of square inch, it would be beyond all risk of explosion. Such a pressure is sometimes required, especially for dairy purposes, for steaming cattle food, for warming buildings and for other purposes; but the providing of such a pressure, without disturbing the absolute certainty of the automatic feed, was a difficulty which the author had to overcome. A little weight placed on the relief-valve would enable one to produce an internal pressure, but an ignorant attendant Briefly stated, the motor is a steam engine working with a negative pressure, and therefore impossible of explosion. It is also automatic in its functions. In the ordinary form of motor the boiler consists or shell with an internal firemake it so accurate that it would internal pressure, but an ignorant attendant might replace the little weight by a big one, not produce a pressure greater than the feed pressure, thereby stopping the automatic feed. Now, this difficulty has been successfully overcome by loading the escape-valve with the feed-water column. The condenser cistern is carried is carried up above the top of the boiler for 3 or 4 feet, sufficient to give the necessary head, and the steam from the boiler, when it escapes, is made to escape into the condenser casing against the water column instead of into the chimney. It will be seen that, as the water level in the boiler is below the escape-valve, there is always more pressure feeding the boiler than there can possibly be steam pressure in the boiler; and it is impossible to produce a steam pressure in the boiler greater than the water column in the condenser cistern. This arrangement enables one to provide a very small pressure, but suffic for steaming purposes. The author then proceeded to explain the construction of the other modification of the motor in which the boiler is separate from the engine, and has a large fuel space, only requiring addition of fuel at long intervals—say, once in eight hours. A section of this modification of the motor is shown in the annexed engraving.

It will be seen that the biler contains a large vertical column of coke, which burns at the bottom, the coke above falling down by its own weight as the bottom portion is

than the ordinary form. One great reason lies in the fact that the heat is all imparted to the boiler surfaces by direct contact of solid fuel, or radiated from the solid fuel which is almost touching the plates. It is the author's intention to carry out careful experiments with this form of boiler. The motor itself, which is used in connection with the separate boiler, is in general principle similar to that of the self-contained motor. motor. It only differs in construction. For simplicity's sake it is made single-acting. One great reason for making it so is that it obviates the necessity of adjustable bear ings in the connecting-rod and crank-shaft. The condenser is placed in the base of the motor, and is provided with an air pump of similar construction to that used in the selfcontained motor. For the purpose of readily starting the motor a small hand pump is combined with the air pump, by means of lathe use, and is built of any size required. | gas is used for cooling breweries. At the governor-valves used for reducing the press-combined with the air pump, by means of lathe use, and is built of any size required.

the engine-room, but the bulk is taken from the other side of the fan, which is in direct the bulk is taken from the bulk is taken from the bulk is taken from the direct the bulk is taken from the direct the bulk is far more efficient and economical is raised. The throwing on of the belt by is raised. The throwing on or the con-means of the ordinary wire rope had no per-means of the ordinary wire rope had no perceptible effect on the motor It is a 1500-pound elevator, used for freight, and runs at a speed of from 40 to 50 feet a minute, going up five or six stories. The power comes from the Edison central station, 200 feet away. Motors operated from this same station are now daily running ventilating fans, printing presses, circular saws, sewing, buffing and other machines in the neigh borhood. It is expected that 20 elevators will soon be running by electricity.

Boring Bar and Universal Vise Chuck.

Messrs, Pedrick & Ayer (L. B. Flanders Machine Works), of Philadelphia, Pa., are putting on the market two new specialties,

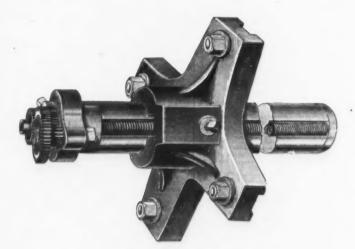


Fig. 1-Boring Bar for Lathes.



Fig. 2 .- Universal Vise Chuck for Milling Machines, Planers, Drill Presses, &c.

NEW TOOL SPECIALTIES MADE BY PEDRICK & AYER, PHILADELPHIA. PA.

of which the vacuum may be obtained without pulling round the fly wheel. A few
feed of cut gears, with steel feed-screw,
is sometimes so rapid as to render the fricstrokes of the hand pump secure sufficient
vacuum to enable the motor to start. Sometimes a circulating pump is combined with

It has hardened centers, automatic constant
to a suitable working pressure the cooling
is sometimes so rapid as to render the friction of the valve-rods so great that the
apparatus would not be operative were it
motion. The builders furnish also suitable
not surrounded by steam-pipes or immersed

times a circulating pump is combined with the air pump, enabling the motor to draw its supply of condensing water from a well, holder. All bars are accurately ground to

A Buenos Ayres paper says more than 20,000,000 sheep, or 12 per cent of all the herds in the Province, have died from disease and exposure, entailing a loss of

Utica is preparing to give an exhibition of the industrial and mechanical interests of

Current Hardware Prices, October 13, 1886.

HARDWARE.	
Ammunition. Caps. Percussion, # 1000— Hicks & Goldmark's	
Ammunition. Caps. Fercussion. # 1000— Hicks & Goldmark's F. L. Waterproof. 1-10's	3 %
G. D	28∉
Musket Waterproof, 1-10's. G. D. S. R. Union Metallic Cartridge Co. F. C. Trimmed	5 %
Double Waterproof, in 1-10's\$1.40) 8. B. Genuine Imported Eley's E. B	5# 6#
RIM Fire Cartridges, Pistol and Rife dis 15& Cen. Fire Cartridges, Pistol and Rife dis 40& Cen. Fire Cartridges, Miltary & Sporting dis 30& Riank Cartridges, except 22 and 3z cal., an adtional 10 & over above discounts.	2 % di-
Tional 10 s over above discounts. \$1.50, dis. Blank Cartridges, 22 cal. \$1.50, dis. Blank Cartridges, 32 cal. \$3, dis. Primed Shells and Bullets \$0.826, dis. B. B. Caps, Round Ball \$1.60, dis. B. B. Caps, Conleal Ball, Swaged \$1.75, dis. B. B. Caps, Conleal Ball, Swaged \$	2 % 2 %
B. B. Caps, Round Ball	N. N. S.
Berdan Primers, all stres, and B. l. Caps (fo Sturtevant Shells) 90¢. dis: All other Primers, all sizes \$1.10, dis: Shells—	XX
Shell— Paper Shot Shella, 1st & 2d or S. G. quai.dis 25 & 5 & 5 & 6 & 6 & 6 & 6 & 6 & 6 & 6 &	*
Brass Shot Shells, 1st quality	*
U. M. C. & W. R. A.—B. E., 9&10	*
#"ads- U. M. C. & W. R. AB. E., 11 up \$2,00 U. M. C. & W. R. AB. E., 9&10 2,30 U. M. C. & W. R. AB. E., 7&8 2,60 U. M. C. & W. R. AP. E., 11 up 3,10 U. M. C. & W. R. AP. E., 11 up 3,10 U. M. C. & W. R. AP. E., 9&10 4,00 Eley's B. E., 11 up 4,00 Eley's B. E., 11 up 4,00 Eley's P. E. 11 a 20 Anvits Eagle Anvits. # b 10¢, dis 20 a 20&2 Wright's 4,00 Armitage's Mouse Hole 4,00 Eley's Mouse Hole 4,000	75 80
Anvila.—Eagle Anvils. \$\Pm\$ 10s. dis 20 at	(¢
Trenton. Wikinson's. J. & Riley Carr. Patent Solid	04
### Amed Vise and Drill—### \$18.00, dis 20 #### \$18.00.	* * *
Hayden & BarnesNo. 2 per gross, \$30; No. 3, \$ Apple Parers.—Advance	50 50 10
Gem. \$\psi\$ dox \$5\$ Gold Medal. \$\psi\$ dox \$4.\ Ideal \$\psi\$ dox \$5\$.	00 00 10
Gem. P dos \$6	8000
Model # doz \$4.6 Monarch, Peach and Apple # doz \$4.6 New Lightning. \$ dox \$6.6	0000
Penn. \$\psi\$ doz \$4.5 Perfection. \$\psi\$ doz \$4.6 Rotary. \$\psi\$ doz \$4.6	0 0
Standard Turntable	0000
72	0
New Haven Cooper Co	*
Jersey	×
Cook's, New Haven Copper Codis 50&10@50&10&6 [vee' Circular Lip	
Connecticut Valley Mfs. Co. dis 60@60&5 Snell's. Odise Mfs. Co. dis 50&10@60&5 COOK S. Deuglass Mfs. Co. dis 50&10@60&10 COOK S. Deuglass Mfs. Co. dis 50&10@60&10@60&10 C. E. Jennings & Co. No. 30. dis 60 C. E. Jennings & Co. No. 30. dis 60 C. E. Jennings & Co. No. 30. dis 60 C. E. Jennings & Co. No. 30. dis 60 C. E. Jennings & Co. Auger Bits. in fancy boxes. F set, 32% quarters, No. 5, 85; No. 30, 31. dis 20 Lewis Patent Single Twist. dis 20 Lewis Patent Single Twist. dis 20 Lewis Patent Single Twist. dis 50&10&5660 Car Bits. Snell Mfs. Co. dis 40&10&60 Car Bits. Snell Mfs. Co. dis 50&10&5660 Car Bits. New Haven Copper Co. dis 50&10 L'Hommedieu Car Bits. Buell Mfs. Co. s Jennings' Bits new list). dis 60&6 Forstner Pat. Auger Bits. (dis 20 Buell Mfs. Co. s Jennings' Bits new list). dis 60&6 Forstner Pat. Auger Bits. (dis 20 Buell Mfs. Co. s Jennings' Bits new list). dis 60&6 Forstner Pat. Auger Bits. (dis 20 Buell Mfs. Co. dis 50&666 L'Essen dis 40 L'Hommedieu Car Bits. (dis 20 Buell Mfs. Co. s Jennings' Bits new list). dis 60&6 L'Hollow Augers. (dis 20&10 & 60&10 L'Essen dis 20 L'Es	K K
Lewis' Patent Single Twist	
Car Bits, New Haven Copper Co	
Forstner Fat. Auger Bits	
Douglass' Expansive Bits— Clark's small, \$18; large, \$26	
Swan's	
Hollow Augers	444
Wood's	M (20 / 20
Double Cut, Shepardson 5	i
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Cleveland dis 50&10 %	SHHPE
Williams' or Holt's, for wooddis 40&10 % Ship Augers and Bus— L'Hommedieu's	B
Snell's	1
Bewing, Brass Ferrule	0
Patent Peg. Leather Top\$12.00 \$\pi\$ gross—dis 45&10 \$\frac{1}{3}\$ A wis, Brad Sets. &c. Awis, Sewing, Common\$\pi\$ gross \$1.70—dis 35 \$\frac{1}{3}\$ A wis, Shouldered Peg\$\pi\$ gross \$2.45—dis 40@40&10 \$\frac{1}{3}\$.	
Snell's Shib Auger Pattern Car Bits. dis 15 & 20 & Awil Haits are lived by the serving Hasse Ferrule. \$3.50 b gross—dis 40&10 \$ Awil Haits growth for the serving Hasse Ferrule. \$3.50 b gross—dis 40&10 \$ Patent Sewing, Short. \$3.00 b gross—dis 40&10 \$ Patent Sewing, Cong. \$1.00 b gross—dis 58&10 \$ Patent Peg. Plain Top. \$10.00 b gross—dis 58&10 \$ Patent Peg. Leather Top. \$10.00 b gross—dis 58&10 \$ Awis, Sewing, Common. \$1.20 b gross—dis 58&10 \$ Awis, Sewing, Common. \$2.00 b gross—dis 58&10 \$ Awis, Shouldered Peg. \$2.00 gross—6.6 dis 40&40&10 \$ Awis, Shouldered Peg. \$2.00 gross—6.6 dis 50&10 \$ Awis, Shouldered Peg. \$2.00 gross—6.6 dis 40&40&10 \$ Shouldered Peg. \$2.00 gross—6.	
Awis Socket Scratch\$1.50 \$ dos—dis 25 \$ 30 \$ Awi and Tool Sets. Av. Pdos.\$10—dis 50&10 \$ 4 ken's Sets. Awis & Tools No.20. \$4 dos.\$10—dis 50&10 \$	1
Miller's Falls Adj. Tool Hdls., Nos. 1, \$12; 2, \$18.dis 25 % Henry's Combination Haft	
Brad Sets, Stanley's Excelsior, No. 1, \$7.50. Brad Sets, Stanley's Excelsior, No. 2, \$4.00. dis Soci10 & Brad Sets, Stanley's Excelsior, No. 3, \$5.50.	B
A xes. Makers' Brands— First quality	
Makers' Brands- First quality	
Dixon's Everlasting. In Dax., \$\psi 000., 1 \text{ B}; \$1.20; 2 \text{ B}, \$\frac{1}{2}\$\$ Dixon's Everlasting	
Nos. 7 to 18. dis 60&5 @ 60&10&5 \$ Nos. 19 to 22. dis 70&5 \$ Nos. 23 to 26. di 90&5 \$ National Wrought Steel Tubular Self-Olling:	1
Standard Farm (1 to 5) and Special Farm (AI to A5)	1
Over 10 sets. (6 to 9, & XX Strong Truck (10 to 16): Less than 10 sets. (6 to 19, & XX Strong Truck (10 to 16): Less than 10 sets. (11 to 16): Cover 10 sets. (11 to 16): Cover 10 sets. (11 to 16): Cover 10 sets. (12 to 16): Cover 10 sets. (13 to 16): Cover 10 sets. (14 to 16): Cover 10 sets. (15 to 16): Cover 10 sets	1
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Washburn's Self-Locking dis 20 € 20x1 Blind Fasteners Hackrell's Hackrell's ♥ doz pairs, \$1.00—dis 20x20x20 Van Sand's Screw Pattern \$1.5 ♥ gro. —dis 50x1 Van Sand's Oid Pattern \$1.5 ♥ gro. —dis 50x1 Van Sand's Oid Pattern \$1.9 ♥ gro. —dis 50x1 Van Sand's Oid Pattern \$1.9 ♥ gro. —dis 50x1 Salishus \$1.0 met list, a Salishus \$2.0 met list, a Security Gravity \$3.0 met list, a Barbed, \$2 m. and larger \$2.0 met list, a Barbed, \$4 in. and larger \$2.0 met list, a Barbed, \$4 in. and \$2.0 met list, a \$2.0 met list, a Barbed, \$4 in. and \$2.0 met list, a \$2.0 met list, a	of et et et et
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Door and Shutter— Cast fron Barrel, Square, &c	*****
Com. list June 10. '84	***
Nre- Common. list Feb. 28, 1883. dis 65&10 P. C. B. & N. Co., Empire, list Feb. 28, 1883. dis 70 P. C. B. & N. Co., Keystone, Phil. list Oct *M. dis 82% P. C. B. & N. Co., Norway, Phil. list Cot. 16, *4. dis 80 Am. S. Co., Norway, Phil. list Cot. 16, *4. dis 80 Am. S. Co., Norway, Phil. list Cot. 16, *4. dis 80 Am. S. Co., Philadel, list Cot. 16, *4. dis 80 Am. S. Co., Bay State, list Feb. 25, *83 dis 70 K. H. & W. Philadel, list Cot. 16, 1884. dis 80x5 B. & E. Mfg. Co. dis 70 Stove and Piote— dis 70	***
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hepard's Niagara Gravity, Nos 1, 3 and 5, dis 80 s hepard's Buffalo Gravity, Nos 1, 5 & 5, dis 80 s bepard's Champion Gravity, No. 75, dis 80 s 10 s	Bro Bro Bro Ra Ra
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\$16.50 19.00 21.50 24.00 27.00 30.00 53.50 36.50 w Haven Edge Tool Co.'s	Two Manager States of the Stat
nlipers.—See Compasses. n Deeners. n Deeners. gengers Comet. erican. p gross 83.00 olex. p dos 25¢, dis 15 g 20 s nan's. p dos \$3.75, dis 20 s 4. French. p dos \$2.50, dis 50 g dos 5, fron handle. p gross \$0,00, dis 45 g 60 s	Per Fair
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Cards. Horse and Curry. Cotton. New Hist, Aug., 1883, dis 1	000
Cards	0 30
Bullard's. dis 25 @ 25&1 Carpet Sweepers. # dos \$17 Bissell No. 5 # dos \$17 Bissell No. 7 New Drop Pan # doz \$19	0
Bissell No. 12 Hall Sweeper. # doz \$36 Grand Rapids. # doz \$27 Crown Jewel. No. 1, \$18; No. 2, \$19; No. 3, 4 Magic # doz \$17	0.02
Mystic	0.00
Queen, with band \$\text{doz}\$ doz \$18. \$\text{Ring}\$ \$\text{\$\text{doz}\$ \$32. Weed Improved \$\text{\$\text{\$\text{\$\text{\$\text{doz}\$}\$ \$18.}}\$} Hub. \$\text{\$\text{doz}\$ \$\$\text{\$\te\	00000
Cog Wheel. \$\psi\$ doz \$16. Church .each \$3. Casters. See Ammunition. Casters.	0
Bed. New list July Plate 1886. dis 50& Shallow Socket 0 60 % Deep Socket 40&10	1
Tale Casters, 18t May, 1884 dis 258204222671032 Ya'e, Gem dis 606608t Martin's Patent (Prognix) dis 458210 m 56 Pavson's Anti friction dis 458210 m 56 'Giant' Truck Casters dis 10 m 10	1
Cattle C	1
Fock, Stow & W. Co	9
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In cask lots. 8¢ 5.2¢ 4.3¢ 3.7¢ 3.6¢ 3.45¢ 3.3¢ 3.24 American Coll, less than cask lots, add ¼¢ % 5. German Coll, list of June. 1883	4 8 8
Covert Halter, Hitching and Breast	BANA
Jack Chain, Iron	5 6
White Crayons. For Lines, Chialk Lines.—See Lines,	000
Chalk. # gro 55 Red. # gro 55 Bue # gro 10 White Crayons # gro 10 Chalk Lines. See Lines. Chalk Lines. See Lines. Chinels. Socket Franting and Firmer— Witherby and Douglas. P. S. & W New Haven and Middlesex. Buck Rros. dis 30	×
Buck Bros. dis 30 Merrill. dis 60&10&10 L. & I. J. White. dis 30 @ 30&5 Tanged Firmers. dis 50 @ 60&6	***
Tanged Firmers, Futcher's. \$4.75 & \$0.0 Tanged Firmers, Epsar & Jackson's. \$5.00 to: Tanged Firmers, Buck Bros. dis 30 Chucks.	000
New Haven and Middlesex dis 30 Merrill. dis 50 & 30 & 50 La & I. J. White. dis 30 & 30 & 50 Tanged Firmers, Hutcher's. 4.75 & \$5,0 Tanged Firmers, Fluck Bros. \$6,00 to 10 & 50 & 50 Tanged Firmers, Fluck Bros. 4.60 to 10 & 50 & 50 & 50 & 50 Tanged Firmers, Buck Bros. 4.80,00 dis 30 & 50 & 50 & 50 & 50 & 50 & 50 & 50 &	***
Providence Tool Co.'s Wrought Iron dis 26 Adjustable, Gray's dis 20 Adjustable, Lambert's dis 20	
Adjustable, Hammer's	4 4 4 4 4
Saw ClampsSee Vise	-
Norway Axle, 4 & 5-16 dis 55&5&16 Second grade Norway Axle, 4 & 5-16 dis 65&5 Superior Axle Clips dis 70&7 Norway Spring Bar Clips, 5-16 dis 60&5&4 Wrought-fron Felloe Clips # 5.56 Steel Felloe Clips # 5.56 # # 5.56	-
Cocks. Brass.	
American, Enterprise Mfq. Co dis 20&10a30 4	
Webb's Patent. dis 46 s Compasses. Ulviders, dit. dis 46 s Compasses. Ulviders, dit. dis 70@70&10 s semis & Call Co. 's Dividers. dis 70@70&10 s semis & Call Co. 's Dividers. dis 50&6 s semis & Call Co. 's Compasses & Calipers. dis 50&6 s semis & Call Co. 's Wing & Inside or Outside. dis 50&6 s semis & Call Co. 's Donble. dis 60 s semis & Call Co. 's Ochole. dis 60 s semis & Call Co. 's (Call's Patent Iuside). dis 60 s tactisfor. dis 50&6 s	
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Cook's Extensiondis 20 @ 20&5 \$ Stevens & Co.'s Calibers and Dividersd's 25&10 \$ Coopers' Tools.	
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andusky Tool Co. dis 30 @ 30&5 & Corkscrews. Umason & Beckley Mfg. Co. dis 40 @ 40&10 & touch's Patent. dis 33\2 @ 33\425 & towe Prox. & Bulbert. dis 53\2 @ 33\425 & towe Prox. & Bulbert. dis 55 & Torn Knives and Cutters. radley's. dis 10 & 7adsworth's. dis 25 & 3dsworth's. dis 25 & 3dsworth's.	
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well's. No. 1, \$\psi\$ dos \$18.00; No. 2, \$15.00; dls 50 \$\frac{2}{2}\$ beber, complete. \$\psi\$ dos \$4.50; dls 50 \$\frac{2}{2}\$ creules. \$\psi\$ dos \$4.50; dls 50 \$\frac{2}{2}\$ set to \$\frac{2}{2}\$ creules. \$\psi\$ dos \$26 \$\frac{2}{2}\$ dls 50 \$\frac{2}{2}\$ aw Door Check and Spring. \$\psi\$ dis 25 \$\frac{2}{2}\$ dls 25 \$\frac{2}{2}\$ Drawling \$\psi\$ nives. \$\psi\$	
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tchet, Merrill's dis 20 @ 20 & 5 stchet, lagersoll's dis 20 @ 20 & 5 stchet, lagersoll's dis 20 @ 20 & 5 stchet, Parker's dis 20 @ 20 & 5 stchet, Whitney's dis 20 & 20 & 20 & 20 & 20 & 20 & 20 & 20	The same
acksmiths' Self-Feeding each, \$7.50, dis 20 s east. P. S. S. W. dis 40210 s east. Wilson's. each, \$6.300 fis 25 s east. Miller' Falls each, \$6.00 fis 25 s east, Bartholomew's. each, \$6.50, dis 25 s east, Merril's. dis 20 g 20 s schet. Merril's. dis 20 g 20 s 5 s schet. Parker's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 s 5 s schet. Weston's. dis 20 g 20 g 20 s	
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	Self-Measuring, Enterprise # doz \$36.00—dis 20 Self-Measuring, Lancia # doz \$36.00—dis 20 Self-Measuring Lancia	&10
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	Fifth Wheels. Derby and Cincinnatidis 4 Files.	5 & 5
	Domestic-	
1	Rest brands	10 70
	Imported— J. & Riley Carr List April 1, 1883, dt	15
	1.4 Rilley Carr . List, April 1, 1883, di J. & Riley Carr Horse Raspa	10
1	Stubs 11st, dis 25 @	30
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1	Eagle, 316-inch Roll. \$2.15, dis Eagle, 516-inch Roll 2.85, die	35
1	Eagle, 54-Inch Roll. \$2.15. display the factor of the fact	35
-	Domestic Fluter \$1.50 each Geneva Hand Fluter, White Metal, W doz \$12, dis	25
1	Crown Hand Fluter, No. 1 \$15; 2, \$12.50; 3, \$10.dis Shepard Hand Fluter, No. 85 # dos \$15.30, dis	40
	hepard Hand Fluter, No. 10	40 9
	Combined Fluter and Sad Iron w dos \$15.00, dis Buffalo dos \$10.00 dis	10
١	Fluting Scissors. dis Fly Traps.—Paragon. W dis	45 S
	Forks.—Hav. Manure. &c., Asso. list. dis 60&108	10
ı	Plated, see Spoons. Freezers, Ice-Cream.	
1	Freezers, Ice-Uream. Leading Goods	R65 9
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	Glue fots.	25 %
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3	Hammers. favdole's List Dec. 1, 1885, dis 25 @ 25&1	0 %
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7	Hickory Firmer Chisel, large gross 5.00 Apple Firmer Chisel, assorted gross 5.00	90
1	Socket Framing Chisel, assorted # gross 3.00	db
-	J. B. Smith Co.'s Pat. File	18
1	Auger, asserted	*
1	Patent Auger, Douglass'	et
7	Patent Auger awaii a	*
1	and No. 4 Reversible, 22¢. Boynton's Loop Saw Handles	
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ж	milton Wrought Wood Track die 55	8
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	der and Wooster, Medina Mfg. Co.'s listdis 70 Imax Anti-Frietiondis 55 Imax Steel Anti-Frietiondis 55 nith for Wood Trackdis 55	20.00
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er er	drews dis 50 gent's Patent Guarded dis 70&10&10 man, old list dis 70&10&10 man, Sargent's 1886 list dis 50&10 erst dis 50&10	
33	ertdis 50&2	6 1

. (0 %	HatchersLis	t Jan. 1,	1886.	dis 35 @ 40
0		Hunt's Broad	46641 46414	dfs 4	085 @ 408 1085
0		Underhill Edge To	ol Co	di	# 40&5 @ 40&10
llo	W-	Simmons Peck's		dis 40	dis 35 @ 40 1
08	5	Hatchers - Listanah Blood. Hunt's Shingling I Hunt's Shingling I Hunt's Shingling I Hunt's Brook Hund's Verkes & Piumb. Underhill Edge To C. Hammond & So Simmons. Peck's. Kelly's. Sargent & Co. Ten fyck Edge To Collins, following I	10- ****		dis 50@50&5
00 110	KE K	Collins, following I Shingling, Nos. 1 Claw, Nos. 1 Lathing Nos. 1	ist 2 3	₩ dos 85.	50 \$6.00 \$6.50
40	1 %	Lathing Nos. 1	23,	P doz 6. P doz 5.	00 6,50 7,00 50 6,00 6,50
314	*	Lathing Nos. 1 Hay Hoives Lightning Electric Gem Wadsworth's Heath Patent Carter's Needle Hinges		₩ d	doz \$18, dis 25 5 oz \$9.50 at \$10.50
1862		Wadsworth's		⊮ de	ов \$12,50 @ \$13,50 , .dis 35&5 @ 40 \$
45	4	Carter's Needle	₩ doz	\$18, dis 1	0&5 @ 10&10&5 3
40	N N	Wrought Iron Bing Strap and T.	8 10 19	(n 20 h	dis 65&5&2 s
40 10	8 8	Strap.	14 to 36	in. * b	D 336@334@
64	8	Hinges. Wrought from Bing Strap and T. Screw Hook and strap. Heavy Welded Ho Screw Hook and line Blind Blind Rolled Blind Blind Rolled Blind Hing Rolled Rateod. Plate Hinges 8, "Providence" 8, "Providence" 8, "Providence 8, "Providen	7 14 1 Kva	1. & up. #	# doz \$1.50 dis
æ5	%	Rolled Blind Hine	es, Nos.	% in 32 and 34.	# doz \$3,80 \ 109 dis 50&10 1
10		Rolled Plate Rolled Raised	es, Nos.	242 and 27	dis 55&10 %
10 70 10	AMA	Plate Hinges 18,	10 & 12 over 12	n., \$ b n., \$ b	340
15	4	Geer's Spring and Union Spring Him	Blank B	ist. March	
10 15 20	N N N	Acme. Crown. Em American, dem, a	pire and nd Star.	U. S Japanned	dis 30 %
30	8	Oxford, Bronze an Barker's Double A	d Brass.	Bronzed.	dis 20&10 %
35 35	*	Union Mfg. Co Bommer's	********		dis 25 %
35 35 35	8	Chicago	*********	**********	dis 30 %
ne	2	N. E.		# de	DE \$4.40, dis 55 % DE \$7.00, dis 55 %
25 30 40	8	Clark's, Nos. 123. N. Y. State.	*********	dis 60&	10 @ 60&10&5 ¶
10	8	Gate Hinges— Western N. E. Reversible Clark's, Nos. 1 2 3. N. Y. State Automatic Common Sense Seymour's, Separd's, Nos. 1, 5 Shepard's, Nos. 1, 6 Reed's Latch and 1 Hees.	*********	doz pa	# \$12.50, dis 50 % ir \$4.50, dis 50 %
35 30		Shepard's, Nos. 1, 2 Shepard's, No. 3.	, 10 and	20	.dis 60&10&10 %
15					
10	5	Garden, Mortar, &c Planter's, Cotton,	ke		dis 60&10&10 q dis 60&10&10 q
	1	Maric			# dos #4.75
16 9		Warren 110e. Warren 110e. Warren 110e. Lane & 1181e. Mayhard. Sandusky Tool Co. Rubbard & Co. Hog. Rings and Hill's Inonroved Ring. Hill's Tongs. Hill's Rings. Perfect Rings. Phampion Rings. Phampion Rings. Phampion Rings. Phampion Rings. Phampion Rings. Prown's Rings. Hoisting Appar Moore's "Hand Hoi Moore's "Hand Hoi Moore's "Ufferent! Holders. Tool Lalz Pat.	8, & 0,	Patd	dis 50 @ 50&10 %
1.54		Sandusky Tool Co., Hubbard & Co.,	**	*********	dis 60&10 %
8 .21		Hog Rings and	Ringe	rmd	is 60 @ 60&10 \$
0 1		Hill's Old Style Ring	ers	# d	OE \$3.00 @ 3.25 OE, \$5.50 @ 6.00
3		Perfect Rings	********	doz box	es. \$2.00 @ 2.25 res \$1.75 @ 2.00
ng	i	Blair's Hog Ringers Blair's Hog Rings			≱ doz, \$2.60 oz, \$1.10 @ 1.15
0 6	0	Champion Ringers Champion Rings, Do	uble	* * * * * * * * * * * * * * * * * * * *	# doz \$2,25
0 %	E	Brown's Rings. Hoisting Appar	ntus-	W d	oz, \$1.25 @ 1.35
0 %	-	Moore's "Differenti Holders, Tool.	al Pulley	Block	edis 15 \$
5 %		Hollow-Ware.		¥ d	loz \$4; dis 25 %
5 %	1	Stove Hollow-Ware	Ground	dis 508	10@50&10&5 \$ 60&5@60&10 \$
0 %	1	Enameled and Tinn Kettles	ed Hollo	w-Ware-	dis 50&10 s
0 %		Grav Enameled Wa Agate and Granite	ware		iis 10 @ 40&5 \$ dis 25 \$
		Galvanized Tea-Ket Inch6	tles-	8	9
2 %	S	Each55# ilver Plated—	60∉	65∉	754
) %		Meriden Brittania C Simpson, Hall, Mille	r & Co	***********	dis 40 %
3 %		Hartford Silver Pla William Rogers Mfs	te Co	*******	dis 40 \$
*	C	Hooks.	Itae		41- 000
*		uat Iron- Bird Cage. Sergent's Bird Cage. Reading. Clothes Line. Sarger Clothes Line. Readi Celling. Sargent's lis Harnesa, Reading li Coat and Hat. Sarge Coat and Hat. Readi Trought Iron- Cotton	t's list		its 60&10&10 4
5		Clothes Line, Reading Ceiling, Sargent's lie	ng Hat		dis 66%&10 \$
*		Coat and Hat, Sarge Coat and Hat, Read	nt's list.		dis 55&10 %
7	1	Cotton Pat. N. Y. M	allet & F	andle W'	# dos \$1.25 ks)dis 30 %
-		Cotton Pat, 'N, Y, M Tassel and Picture (Wrought Staples, Ho Broch Hooks	T. & S. M	Ifg. Co.)	rought Goods
*	19	Tre- Wire Coat and Hat.	Gem, lis	t April, 18	86dis 45 s
*		Wire Coat and Hat. Wire Coat and Hat. Belt Wire Screw Hooks a	nd Eves.	See Brigh	884dis 45 4 Is 80 @ 80&5 5
	G: Bi	nas	****** **	********	P doz \$2,00 dis 55 @ 60 \$
*	He	ooks and Eyes—Mall boks and Eyes—Hall	cable Ir	ond	dis 55 ¶
	F	hiffitree—Patent boks and Eyes—Mali boks and Eyes—Mali boks and Eyes—Hras ab Hooks, American Horso Nails. Nos. 5	6 7 8	9 10	dis 40& 10 \$
30	AL	Horse Nale Nos. 6	8¢ 26¢ 20 3¢ 21¢ 20	6 24¢ 23¢. 0¢ 19¢ 18¢.	dia 25&10 4
	Es	sex	8 26 21 4 22 22	6 24¢ 23¢. 1¢ 24¢ 23¢.	dis 25&10 s
8	No	rthwest'n. P n 28¢	36 216 20 56 236 2	d 19¢ 18¢. 2¢ 21¢ 20¢.	dis 12% s
2	A. C.	C > 28¢	5¢ 28¢ 2 5¢ 28¢ 2	20 21 ¢ 20 ¢	dis 25&5 %
dip	Ne Sa	w Haven. F B 316 2	36 216 21	50 240 230. 50 240 240. 00 180 180.	dis 25&10 % dis 25&10 %
8	Ch	pewell 3 316	Se 23e 21	e 21 e 20 e. e 24 e 23 e.	dis 10&10&5 %
× ×	N.	TE.—Concessions of	n above	e quotati	ons are fre-
16 16 16 16 16 16 16 16 16 16 16 16 16 1	N	Horse Shoes —See Hose, Rubber	shoes,	Horse. 75&10	@ 75&10&6
	I	American Ice Chise	Pol'd	# dos i	\$3.00, dia 20 4
8.0	No W	ves y lee Breakers htte's Sliding Head	leke	dos	\$6.25, dis 20 \$ \$6.25, dis 20 \$
	Du	nlap's Ring Picks ood Head Picks. Sarg	ent's	₩ dos \$1.6	\$2.00, dis 15 % 0, dis 50&10 %
8 6	lee	Mallets, Pick in har Axes, Small Cast or	Mall	dos \$1.25	\$2.00, dis 15 \$ 5, dis 20&10 \$
8 8	Ac	mbination fee Tools. me fee Pick and Ton ger's L'ghthing fee (ns	TOSS \$55.00	OR \$2.00 net 0. dis 50&10 f 8 gross \$28.50
100	1	ce Cream Freeze	rs.—Se	Preezers	44.050.00
	Fai	vrk.—Concessions of the control of t	Screws	dos \$2.75	dis 20@25 \$
6	K	etties. Brass. 7 to 17 in. incas larger than 17 inc	clusive.	* *******	₩ m 22¢ net
	En	ameled and Tea Ket	les	See I	follow-Ware
	Loc Ea ₄	ck Asso'n list Dec. 18	and Padl	.dis 45&2	@45&10&2 % dis 40&2 %
	Ho	tchkiss' Copper and tchkiss' Padlock and	Tinned .	£	dis 40 s
	Rai	k Asso'n list Dec. If de. Cablnet, Trunk i tehkiss' Erass Blank tehkiss' Padlock and tehet Bed Keya	indles	₩ doz #	6.00, dis 15 f
	Par	kin's Rosewood or C	ocobolo	P doz \$	9.00, dis 40 f
	Wh Am	on's Putcher Knive es' Butcher Knives.	8		dis 25 @ 30 s
	Am	es Shoe Knives es Bread Knives		dos \$1.50,	.dis 20@25 1 dis 15 % 20 s
	Moi Goo	hols' Butcher Knives es' Shoe Knives es' Bread Knives an's Shoe and Bread dell Co., Butcher, Si r and Straw ele and Pocket in obs.	Knives	d, &c	dis 20 s
1	Tab	de and Pocket		**********	See Cutiery
1	Doc Doc	or Por. Jap'd or Por. Por	*******	0.0000000000000000000000000000000000000	
	Doo	nacite Door Knobs, i	ow list	Dec 35	2.00 (c 12.75 40.035410 s
	Bos	mebs. w Mineral. r Por. Jap'd. r Por. Por. r Por. Por. r Por. Plated. mactice Door Knobs. e & Towne Wood Kton Knob Co. siture Plan. siture Plan. siture, Wood Screw. c. Rubber Tip. siture, Judd's.		54 gross i	\$10, dis 20 : nen dis 10 s
	Bas Pict	e. Rubber Tip ure, Judd's		dis 60.81	is 70&10 & 6 10&10 & 70 &
li	Pict	ure, Sargent's		d	die 35&5 g

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October 14, 1886.	
adles.	Pes
Adles	Whi Pa
Melting, Warner'sdis 30 %	Dixe
Tubular. Standard No. 1, w dos	PI
Tubular, Lift Wire, No. 1, # dos Guards for Tubulars, add # doz	Adso
Lasterss. Tubular Standard No. 0. 9 dos Tubular Standard No. 1, 9 dos Tubular Lift Wire, No. 0, 9 dos Tubular, Lift Wire, No. 1,	Bras
Chesper Machines	N'le
Wood, Common. # doz \$1.70 @ 1.75 Duniap's Improved # doz. \$3.75, dis 20 @ Sammis'No. 1, \$5 ; 2, \$9 ; 12, \$18 # doz. dis 25&10 @	156 a 156 a 156 a
Jennings' 'Star'' 402 \$2.50 The "Boss'' 402 \$2.50 Dean's Nos. 1, \(\psi \) doz \$6.50; \(2, \\$3.35; \) 3, \(\\$1.90	11/2 a 11/2 a Bolle
Little Giant	Woo Mo
Cotton and Linen Fish, Draper's	He Be Ba
1.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25. dis 25 \$ Cotton Chalk	Iron Ba Ba
Masons' Colored Cotton	Ste Me
Storm Char S. \$2.25 ; No. 4, \$2.75 ; No. 5, \$5.25 . dls 25 \$ Catton Char S. \$2.25 ; No. 4, \$2.75 ; No. 5, \$5.25 . dls 25 \$ Catton Char S. \$2.25 ; No. 4, \$2.75 ; No. 5, \$5.25 . dls 25 \$ Silver Lake, Braided, Nos. 0, \$6.00 ; No. 1, \$6.50 ; No. 2, \$7.85 \$ Silver Lake, Braided, Nos. 0, \$6.00 ; No. 1, \$6.50 ; No. 2, \$2.50 \$ Masons' Linen, No. 34, \$1.50 ; No. 4, \$2 ; No. 44, \$2.50 \$ Masons' Colored Cotton	Plan
Door Locks, Laiches, &c.— dis 45&2 @ 45&10&2 % List, Dec. 18, 1885	Pla Pla
Reading Hardware Co. (list Feb. 2 1885)	L. S
F. Many's "Extension Cylinder", \$10.50 \(\phi \) doz net Barnes Mfg. Co	Butt Hall
L. & C. Round Key Latches. dis 0&10 \(\) L. & J. Flat Key Latches dis 38 \(\) & \(\	Hum Gas Gas
Barnes Mfg. Co.	Ruse
Seed's N. Y. Hasp Lockdis 25 % Cabtiet— Eagle, Gaylord Parker and ¿ List March, '84, revised	P. S. P. S. Care Morr
Cabinet	Stan
Stoddard Lock Co	Pock Davi
Vale die 40 % Barnes Mfg. Co. die 40 % Sagte and Corbin Trunk dis 25-62 % Ohampion "Cabinet and Combinationdis 25-54 Romer'sdis 25 %	Roui
Romer'sdis 25 % Padioces	80.00
Paddoox= State Paddoox Paddo	Leed
Norwich Lock Co	Kohl Kohl
Romer's, Nos. 200 to 505 dis 20 \$ 4.5	Schn Ryan Cron
"Champion" Padlocks dis 33% 1 Hotchs iss dis 30 % 1	Po White Antr
"Horse Shoe." # dos. #0	Pr Dissi
Brown's Patent	Dinnt E. S.
Lumber Tools. Ring Peavies, "Blue Line" Finish	Prun Hens Whe
Steel Socket Peavies. \$\psi\$ doz \$\psi 1.00\$ Mall. Iron Socket Peavies. \$\psi\$ doz \$\psi 1.00\$ Cant Hooks, "Blue Line" Finish \$\psi\$ doz \$16.00 Cant Hooks, Common Finish \$\psi\$ doz \$16.00	J. Ma
Brown's Patent	Japa Brass Japa
Finish. # doz \$14.50 Cant Hooks, Clip Clasp, "Blue Line" Fin. # doz \$14.00 Cant Hooks, Clip Clasp, Common Finish. # doz \$12.00	Emp Hay
Cant Hooks, Mail. Socket Clasp Common # doz \$14.50 Cant Hooks, Clip Clasp, "Blue Line" Fin. # doz \$14.00 Cant Hooks, Clip Clasp, Common Finish. # doz \$14.00 Hand Spikes	Hay Hay Hay
Pike Poles not Ironed W	Hay shad Tack
Setting Poles, W dog 14.00 15.00 17.00	Pu Ciste Pitch
Bkfdding Tongs. \$\psi\$ doz \$51.00 Log Binders. \$\psi \text{doz} \$25.00 Bended Boot Calks, 1 to 5 M, dis 25 5; 5 to 10 M, dis 20 \$	Pitch Pu Sadd
wamp Hooks.	Bemi
FOM COUNCE DOCUMENT A COST STORE AND A SEC. STORE IN C.	Sprin Sprin Solid
M allets	Ra
Mattocks.—Regular listdis 60:65 @ 60:210 1 Ment Cutters	alidii Barn
# dos\$14.00 17.00 19.00 30.00—dis 45&5 6 Woodruff's	8, D.
Ment Cuttors. Dixon's—Nos	Perry Vieto
# dos\$27.00 33.00 45.00 dis 70.85.670 & 10.5 0 dis 70.85.670 & 10.5 0 dis 70.85.670 dis 30.5 0 dis 70.85.670 dis 30.5 0 dis 30.5	Cast Malle Piqu
Nos 10 12 23 33 42	Wost Ha
Each	Imits
Miles' ChallengeNos. 1 3 3 3 40.00—dia 45.045&10 5 40 50	Badg Lamo
# 10ser's No. 55	tron,
Kieser's Butcher	Ho Stair Ho
Kieser's Butcher	Barn Acme Union Re
biades, \$18	Mat
Molasses Gates. die 7041047545	Mar Sina Sina
Stebbins' Genuine	Sina Sina Sina
Mainasca Gaites dis 70&10a77&25	Sine Not Cotto Jute
7.00 8.00 9.00 10.00. V dos, dis 00210210 s Stoney Drawers. — dos. \$18.	Boxw
Muzzles.—Safety. \$\psi doz. \$\struct S\$. See Trade Repurs Wire Nails, list April 13. \$\struct S\$. See Trade Repurs Wire Nails, Standard Penny. \$\psi \text{keg}, \text{card rate, \$\$5.00 Wire Carpet Nails.} \text{See Tracks}	Sad Belf H Belf H
Wire Carpet Nails	Gream
	Mrs. I Mrs. I Enter Comb
Nuts and Washers. Square Nuts, % and smaller	Fox R Chine New I
Nuts and Washers. Square Nuts, 36 and smaller. Square Nuts, 716 and larger. Square Nuts, 726 and larger. Square Nuts, 726 and larger. Square Nuts, 726 and smaller. Square, 726 and smaller. Square, 736 and smaller. Square, 736 and sarger. Square, 746 and sarger.	List A Wadd
Washers. 7-16 and larger	Committee Paten
Blake's Pattern	Cable Cable
O Government	India Stiver Silver
Navy B 54e Oilers Zine and Tin Gis 66e 10e 70 5 Grass and Copper Gis 50e 10 c	Silver Silver Sylvai
Malicable, Hammers' Improved, No 1. \$3.60; No. 2, \$4.00; No. 3, \$4.40 \$ dosdls 10 \$ 104.10 \$ Malicable, Hammers, Old Pattern, same listdis 40 \$	Samso Samso Samso
Prior's Patent or "Paragon" Zinc dis costs & costs & Frior's Patent or "Paragon" Brass	Samso Sas Clark'
Proughton's Zincdis 60 s	Fergus Morris Walke Attwe
American Packing	Readir Hanım Comun
Italian Packing	Bron Commo Oniver
	Kemps Kemps Corbin Payson
10 12 14 15 15 15 16 17 17 18 18 18 18 18 18	ancer lugun
Fire Buckets 2.70 3.20 8.00 1	ves Pr Jesch

		ГІ
	Peach ParersMonarch # doz \$15.00, dis 10 Rotary # doz \$15.00, dis 10	Soli
发展发展	Peach Parers Monarch.	Mile Per Dra Ent Silv
	Railroad, 5 to 6, \$11,00; 6 to 7, \$12dis 60&5 @ 60&10	Diss
4 4 4	#Icture Nails. Figure Nails. Brass Head, Sargent's list	Atk Atk Atk
	Forcelain Head, Sarpent's list	Atk
5000	Pinking Iron	
000	Pipe, Wrought Iron	W. Pea Pea Pea
5 16 K	Wood Planes	1.64
	Molding dis 15&2 % Extra 10 ; Bench, First Quality dis 20&2 % often giver Bench, Second Quality dis 20&2 % by jobbers Bailey's (Stanley R. & L. Co.) dis 20&10 ;	Riel Rice Boy
6	Iron Pianes— Bailey's Stanley R. & L. Co.\ dis 30&10 ? Bailey's "Victor" dis 20&10 ?	Boy Boy Hac
,	Bailey's Stanley R. & L. Co. dis 30&10	Gi
	Plane Ironsdis 20&10 s	Si
6000	Finale Froms, Butcher's \$5.00 @ \$0.20 to 3 finale Froms, Butcher's dis 30 9 finale froms, Middlesex Mrg. Co., Baldwin Fron. Single and Cut. dis 20 @ 20 5 Double. dis 35% @ 40 finale from the 20 dis	Red Still Still
	L. & I. J. White dis 25 t	Con Lea Nas
	## Pilers and Nippers. Button's Patent	Han Ben Ben
	Gas Pilers . dis 60 e Gas Pilers, Custer's Nickel Plated dis 60 & 5 e dureka Pilers and Nipper	Hen Alk Alk
	Humason & Beckley Mfg. Co	Har Diss Atk
200	### ### ### ##########################	Atk Mor Cro
	Flumbs and Levels. Standard List dis 70&10:670&10:610 g Disston's dis 40&10:1 Pocket Levels. dis 70&10:670&10:10 g Davis Iron Levels. dis 30:10 g Javis' Inclinometers dis 10:210 g	Boy
	Poppers, Corn. Round or Square, I qt	Hat Hat
	Bround or Square, 1 qt	Uni Uni Cha
1	Sureka Diggers. \$ doz \$16 % \$17 Leed \$. \$ dos \$8.00 % \$0.0 \$8.00 \$ \$0.00	Cha Fam
	Stetcher Post Hole Augers \$\psi\$ dos \$36,00 dte 20 dt \$\text{Surean Diggers} \$\psi\$ dos \$10 cs \$11 cs \$11 cs \$10 cs	Scal Scal Scal
	schneidler Kyan's Post Hole Diggers Van's Post Barn	Box Box Defi
	Hoosier	Ship Ship
	Pruning Hooks and Shears. Disston's Combined Pruning Hook and Saw. # doz \$18.00	Port Scre
	Dission's Combined Pruning Hook and Saw & dos \$18,00.	Dou Diss Diss
	Wheeler, M. & Co.'s Con bination. F dos \$12, dis 20 \$ Junian's Saw and Chis 1	Stan Stan Sara
	Pulicya, —Hot House, Awning. &c	Sare
-	Japanned Clothes Line dis 60-210 8 Empire Sash Pulley dis 55 @ 60 % Hay Fork Solid Fre 44 00 Swipel 84 50 (dis 50 & 10	Kna Kna Kna Sets
	Hay Fork, "Anti-Friction," 5 in. Solid, \$5.70dis 50 & Hay Fork, "F" Common and Pat. Busheddis 20 & Hay Fork, Tarbox Pat. Irondis 20 &	Char Clar Crav Kua
	# lieys.—Hot House, Awning. &c. dis 60.210 s	Kilri Alia Kolt
	Cistern, Best Makers. dis doi: 10.610 @ 102.00 % Pitcher Spout, Best Makers. dis doi: 10.610 @ 602.102.10 % Pitcher Spout, Change doors, doors, dis doi: 10.610 @ 70.610.610 %	Woo
	Funches. Saddlers' or Drive, good quality \$\psi\$ dos 60 \(\psi\$ do 60 \) do 60 \(\psi\$ do 60 \(\psi\$ do 60 \(\psi\$ do 60 \) do 60 \(\psi\$ do 60 \(\psi\$ do 60 \) do 60	Ro Fla
	Bemis & Call Co.'s Springfield Socket	Hac Mac
	Solid Tinners'. dos \$1.44, dis 55 % Finners' Hollow Punches. dis 2002 % Dail.	Bene Be
	Rail. sliding Door. Wrought Brass # 5 35\$,dis 20\(\text{a2}\)25 sliding Door. Bronzed Wrt. Iron # foot 7\$ sliding Door Iron. Painted # foot 4\$, dis 20\(\text{a2}\)05 to 8arn Door. Light Incn \$4 \$ \$ \$4 \$ \$0\$ \$10\$ \$8\$. D. for N. & Hangers— Small. Mod. Large	Be Be Ha
	Per 100 feet	Bed. Han
	Per 100 feet	Han- Jack Jack Jack
	### dis 60&10 @ 60&10&10 \$ Cass Steel	Leat
	Wostenholme & Butcher	Grai Cli Ge
	Razer Streps. Genuine Emerson. Initation Emerson. V dos \$2.00, dis 20x10x10 a Torrev's. Cu 20 5 Badger's Belt and Combination. V dos \$2 Lamout Combination. V dos \$2 Lamout Combination.	Grad SII
	Rivets and Burrs. Iron, list October 1, 1886	Car V Bu
	# Rivets and Burrs. Iron, ist October 1, 1886 .	Clo Im Im No
I	Rollers Barn Door, Sargent's list dis 60&10&10 \$ Sarme (Anti-Friction) dis 50 \$ Union Barn Door Roller dis 70 \$ Kepe Mnf'rs list, July 27, 1886 Manita dis 10 \$ Manita dis 10 \$ Sarme (Anti-Sarme Wall 27, 1886 dis 10 \$ Sarme Wall 27, 1886 dis 10 \$ Sarme Wall 27, 1886 dis 10 \$ Sarme Wall 28, Sarme W	Jobb Bo Bh Ame
l	Hope.—Mnf'rs list, July 27,1886. Mantla	Prun Barn Tinn
l	Manila Tarred Rojo 9 12 12 2 4 Manila Hay Rope 9 10 14 2 5 10 14 2	Seyn Hein Hein First
I	Sinal	Acm
	Repe. — Mnfrs list, July 27, 1886. Manlia	Viete How
I		Stide M. B.
l	Tory dis 50 @ 50 & 10 \$ Sad Froms	Pat Pat Ru
	From 10 to a taketory 100 a 2.35 a 2.	Mod
	Enterprise Star trons, new list, July 20, 1882dis 40 g Combined Fluter and Sad Iron # doz. 515.00. dis 15 g Fox Reversible, Self-Fluter # doz., \$24.00 net	N
	Self-Heating, Tailors \$\psi\$ dos. \$18.00 mes Gelesson's Shirodomes Colored Gelesson's Shirodomes Colored Gelesson's Shirodomes Double Pointed dis 40 a 46845 5 mes Pott's Irona Souare Back dis 40 a 46845 5 mes Pott's Irona Souare Back dis 40 a 46845 6 mes General Combined Futer and Seal Irona \$\psi\$ dos. \$35.00 dis 15 \psi\$ Fox Reversible, Self-Fluter \$\psi\$ dos. \$35.00 met Chinese Laundry IN. \$Butt Co.) \$\psi_{\text{sign}}\$ dis 15 \psi\$ Sew Encland \$\psi_{\text{dist}}\$ dis 15 \psi_{\text{dist}}\$ dis 25 \alpha 20 0 a 354 0 \psi_{\text{dist}}\$ dis 20 \alpha 35 0 a 354 0 \psi_{\text{dist}}\$ dis 20 \alpha 35 0 a 354 0 \psi_{\text{dist}}\$ dis 20 \alpha 35 0 a 354 0 \psi_{\text{dist}}\$ dis 20 \alpha 35 0 a 354 0 \psi_{\text{dist}}\$ dis 20 \alpha 35 0 a 354 0 \psi_{\text{dist}}\$ dis 20 \alpha 35 0 a 354 0 \psi_{\text{dist}}\$ dis 20 \alpha 35 0 a 354 0 \psi_{\text{dist}}\$ dis 20 \alpha 35 0 a 354	
ľ	Waddell & Co	-
	Sask Cord	
	Cable Laid Italian "	
-	Silver Lake, B Quality, White506, dis 10240210 \$ Silver Lake, B Quality Drab556, dis 102402 10 \$ silver Lake, C Quality, White (only)286 @ 296 Sylvan Spring, A Quality, 50@556, dis102102102102	
	Samson, Braided, White Cotton50¢ dls 20 4 20 20 210 5 Samson, Braided, Urab Cotton55¢ d's 20 4 20 210 5 Samson, Braided, fealfan Hemp55¢ dls 20 4 20 20 20 20	
1	Sash Locks. Clark's No. 1, \$10.00; No. 2, \$8.00 \$ grossd.s 334 \$ Ferguson's	
		HE.
-	Morris and Trumph, int Aug. 10, 1080 1080 108 50cc 10 % Walker &	
The same of		Nick
Canada v	Ommon Sense, Nickel Pisied \$ gross \$12.00 net Iniversal	-

Starts Weighten Was and Staffers or Filters Was and Staffers or Filters Wines' College of St. (1985) Wines' College of St. (1985) Wines' College of St. (1985) Franciscollege of St.	I	H	E	I	R	0	N	A	G	E
Dissions Officular, Mill and Cross Cut dis 48210 s Atkins' Crusta anck, http. dc 16 30210 s Atkins' Crusta anck, http. dc		Sash Solid E. Saus Miles' Perry Draw C Enterpi	Weig yes, in t age S 'Challe 'Challe ut No. 4	hts. op lot tuffe nge " loz. N	o. 1.1	r Fi	doz. \$20 (o. 0, \$21 each	F tot 0, dis 500 1, dis 500 1, \$30.00 11s 20&1	1, \$22. 250&5 250&5 dis 20 0 @ 30	50 %
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Stanley H. & L. Co. Stack inaules dis 60&10 Sargent & Co. No. 2 Forget Handles dis 50&10 Sargent & Co. No. 2 Forget Handles dis 50&10 Sargent & Co. No. 2 Forget Handles dis 60&20 Sargent & Co. No. 2 Forget Handles dis 60&20 Sargent & Co. No. 2 Este dis 60&20 Sargent & Co. No. 4 & Stanles dis 60&20 Sargent & Co. No. 4 & Stanles dis 60&20 Sargent & Co. No. 4 & Stanles		Screen of Screen of Screen of Screen of Screen of Douglas Disston' Disston' Buck Br	Mfg Co	rons.	War	Door ner's.	Framedis 3.	dis 20&dis	10&10 10&10 15&10 15&10 45&10	**
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Bench, Iron		Round Flat H Round Flat H Round	ead Iro Head I ead Bra Head I ead Bro Head	ron Brass. Dnze Brons	ie	d	is 75 % is 70	Extra often	5@10 giver	% I.
Sosgres, complete, \$4.00. dis 20 \$ Seythes. (Association prices.) dis 20 \$ Seythes. (Association prices.) dis 20 \$ Grain Scythes. (Association prices.) dis 20 \$ Grain Scythes. (See Final Prices.) doz \$8.00 \$ Grain Scythes. (See Final Prices.) doz \$8.00 \$ German, Cast or Silver Steel, either flair Set or Waldron, in Straw \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Half set Waldron \$\psi\$ dox \$8.70 \$ German Steel, Grain \$\psi\$ dox \$8.70 \$ German Steel, German Steel, German \$\psi\$ dox \$8.70 \$ German Steel, German Steel, German \$\psi\$ dox \$8.70 \$ German Steel, German Steel, German \$\psi\$ dox \$8.70 \$ German Steel, German Steel, German \$\psi\$ dox \$8.70 \$ German Steel, German Steel, German \$\psi\$ dox \$8.70 \$ German Steel, German Steel, German \$\psi\$ dox \$8.70 \$ German Steel, German Steel, German \$\psi\$ dox \$8.70 \$ German German Steel, German Steel, German \$\psi\$ dox \$8.70 \$ German German Steel, German Steel, German Ge		Bench, Bench, Bench, Bench, Hand. Lag or C Coach, F Bed	Head, nd Har lron. Wood, Wood. oach.	Beec Hick	hory	it	is 55&10	0 @ 55&: w do dis : 10 @ 25& 75 @ 75& dis 75 @	11s 55 10&10 2 \$2.2 20&10 10&5 10&5 75&5 25&5	* **
German, Cast or Silver Steel, ethner flair Set or Waldron, in Straw # doz \$8.90 Set or Waldron, in Straw # doz \$8.30 Grass Scythes- Silver Citipper, Boxed and Sharp # doz \$7.00 Grass Seed and German Steel, Full Set or Waldron, Sharp and Boxed # doz \$8.70 User Harms and Boxed # doz \$8.70 User Harms and Boxed # doz \$8.70 User Harmbie and Weed # doz \$8.70 User Harmbie and Weed # doz \$8.70 User Harmbie and Harb # doz \$8.70 User Harmbie and Boxed # doz \$8.70 User Harmbie and Boxed # doz \$8.70 User Harmbie Harmbie # doz \$8.70 User Harmbie Harmbie # doz \$8.70 User Harmbie Harmbie # doz \$8.70 User Harmbie # doz \$8.		Bogers,	compleies.—(A	te. \$4.	co	price	s.)	*********	11s 25 11s 25	5
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Sheaves		America Pruning Barnard' Tinners' Seymour Heinsch' First qui Second q Acine Ca Diamond Ulipper. Victor Ci	r (Cast) 's Lies, 's, Lies, 's, Lies, 's Tailor ality C. uality (ast Shea I Cast S ast Shea	Trim Dec., Dec., 's She S. Tri C. S. Tri hears	See imers . 1881 . 1881 . sars 	Prun	ing Hoc	0 @ 75& and # do dis dis 60& dis 60 dis 1 dis	10&5 1 Shear 2 \$3.7/ 20&2 2 10&5 9 0&10 9 133\6 1 10&5 9 0&10 9 0&10 9	6 E E E E E E E E E E E E E E E E E E E
		Shear Siding I M. W. & R. & E. Corbin Patent Patent Russell Moore's	res. Door- t Co., ii t iist D 's list Roller, Roller, Anti-	Hath Friction	c. 18, 1, 1884 eld's. lon, li	1885st De	ged Ste	eidis dis dis 60& .dis 60& d	15&2 9 80&2 9 16&2 9 10&2 9 in 70 9 80&2 9 in 60 a	A S

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Sliding Shutter—	Ting
Stiding Shutter— R. & E. list Dec. 18, 1895 dis 60&10&2 \$ \$ R. & E. list Dec. 18, 1895 dis 60&10 &	Punch Snips. Tin
Shoes, Horse, Male, &c. Horse—surder's, Perkins', Phoenix, at factory \$3.75 Waixer's Forged. \$3.75 Mule—Add \$1 \text{ \text{\$\text{\$w}\$}} to above prices.	Pieced Japani Stamp
Ton lots	Tob Enterp Wood All Iro
Ames Shovels, Spades, &c., list Nov. 1, 1885dis 20 \$ NOTE.—Jobbers frequently give 5 @ 734 \$ extra on above.	Wilson Clippe Acme.
Griffith's Black Iron.	Tra Woller Rether Rether Rether
Griffith's Black Fron.	Excels Shaw's Paysor
Remington's (Lowman's Patent),dis 30&10 @ 40 % Rowland's, Hack Iron	Newl Onese Game Mouse
Drop. ₹ bag. 25 h (2¢ off for eash in 5 days\$1.60) Drop. ₹ bag. a b	Mous Mous Mous Mous Mous
Skeins, Thimble. Western list	Mous Rat. Ideal
Sieves. Sieves.	Tro Lothro Reed's Disstor
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Iron	Garden Trie Butter True Penfiel
Stearns' \$\psi\$ dom \$9.00, dis 20&10 \$\frac{1}{2}\$ (ves'	Tub
Spoons and Forks. Tinned from— Basting, Central Stamping Co.'s list dis 33½22 Solid Table and Tea, Central Stamping Company's list dis 35½22 Buffalo, S. S. & Co. dis 33½22 Silver-Plated	No. 9, No. 12, No. 18, No. 24, No. 36, No. 264 Chalk Mason
Silver-Plated— Meriden Brit. Co., Rogers	2-Ply H 3-Ply H 3-Ply H Cotton
Wm. Rogers Mfg. Co. dis 50&10 6 60 5 Simpson, Hall, Miller & Co. dis 50&10&5 6 60 5 Holmes, Booth & Haydens dis 50&10&5 6 60 5 Holmes & Edwards Silver Co. dis 50&10&5 6 60	V 100 Wool Paper. Cotton
Silver-Plated-	Fishe Steph Park
Elliptic, Concord, Platform and Half Scroll	Wilso Howa Bonn
Steel and Iron dis 70&10@70&10&10	Mille Tren Merr Sarge Back Doub
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	Sarge Hopk Read Went
Sand Stone. # B, 216 Washita Stone, Extra # B, 21 66 226 Washita Stone, No. 1 # B, 176 Washita Stone, No. 2 # B, 136 Washita Stone, No. 2 # B, 136	Comb Cowell Bauer's Amat
Washita Sipa, No. 1. # 5.37 69 386 Arkansas Stone, No. 1, 4 to 6 in. # 5, \$1.45661.50 Arkansas Stone, No. 1, 6 to 9 in. # 5, \$1.45661.50 Arkansas Stone, No. 1, 6 to 9 in. # 5, \$1.45661.50	Was Smith's
Hindostan No. 1, 346: Arc, 446: Slips, 546:	Johnson Penny's Applete Bonney
Joseph Dixon's	Wed Steel Well
Lake Superior Silas	Well Hill's fron Cle Whitin Whitin Well Wire
Yates' Liquid, 2 3 5 10 gal. cans 2 gal. \$1.00 90 75 05 Jet Black \$ \$70 \$3.50 Japanese \$ \$70 \$3.50 Fireside \$ \$70 \$2.50	Wire Iron- Marke Marke Marke
Nacks, Brads, &c. P gro \$2.50 List. Sept. 1, 1882, and supplement. Jan. 1, 1886 American from Carpet Tacks	Stone Stone Stone
Swedes Iron Carpet Tacks dis 75 d. 75&10 \$ Swedes Iron Wire Carpet Tacks dis 70x10 de 75&5 \$ Swedes Iron Tacks dis 70x10 de 75 \$ Swedes Iron Uphoisterers' Tacks dis 70 de 70x10 \$	Stone Stone Tinne Anner
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Tinned Capped Trunk Nalls	Baxter's Baxter's Coes' Ge Coes' "
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Silvered dis 30x 10x 10x 10x 10x 10x 10x 10x 10x 10x 1	Lamson Sterling Bemts & Bemts &
Wire Carpet Nails dis 80 @ 80 @ 10 € Wire Rades dis 50 @ 50 & 10 € Steel Wire Brads, R. & E. Mfg. Co. dis 50 @ 50 & 10 \$ Tap Herers. Common and Ring dis 20 & 10 \$	Hemis & Hemis & Aiken's The Fav
Steel Wire Brads, R. & E. Mfg. Codis 50 65 50 &10 8 Tap Horers.	Webster Boardm Always Alligato Donohu
American dia 25&10 \$ Spring dia 40 \$ Spring dia 40 \$ Chesterman's Regular list dia 20 \$ Thermometers dia 80 \$ 80 \$ 80 \$ 80 \$ 80 \$ 80 \$ 80 \$ 80 \$	Acme, B Acme, B Acme, B Walker
Tin Case	Diamone

&2 % :10 \$	Tinners' Shears. &c. Shears and Snips (P. S. & W.)
10 % 25 %	Snips, J. Mallinson & Codis 33132
25 6 3.75 3.75	Tinware Stamped, Japanned and Pieced, Central Stamping Co., list June 1 1884. Extras some Discourage Extras some Pieced, S. S. & Co.
n 9¢	Tobacco Cutters. Enterprise Mrg. Co. (Champion)dis 20x10 @ 30 \$ Wood Bottom # doz \$5.00 @ \$5.55
20 %	Tobacco Cutters. Enterprise Mfg. Co. (Champion) dis 20&10 \$3.04
10 %	Transom Litters Followed w. Pront Iron Pronted
10 % 20 % 10 % 20 %	Rether's Improved Self-Locking (Class 301)dis 40 % Rether's Improved Set Screw (Class 201)dis 45 % Rether's (Class 101)dis 5 %
30 % 16 6 10 \$	Transom Litters Wollensak's Parent Iron Bronzed
10 % 40 % 10 %	Game
1.60 .37¢	Game, Blake's Fatent
10 %	Mouse, Cage, Wire. Mouse, Catch: em-alive. Mouse, 'Bonanza' Mou
16 % 25 % 2.25	Game, Blake's Patent
2.25 ted. 3¢	Trowels Lothrop's Brick and Plasteringdis 30 @ 30&5 \$ Reed's Brick and Plastering
5¢ 05 \$5 \$	Disston's Brick and Plastering dis 20&10@20&10&5 & Peace's Plastering dis 25 & Clement & Maynard's dis 20 &
£2 %	Travels Lothroy: Brick and Plastering
45 % 30 % 10 %	Garden
50 %	Trucks, Warehouse, &c.
10 % 10 % 20 %	No. 9, Flax Twine, 4 and 46 b Balls22¢ 30¢
£2 €	No. 18, 4 4 4 18 1856 286 1856 286 1856 286 1856 276 1856 286 1856 286
18 12 1 12 1	No. 204, Matraas, 4 and 5 Chalk Line, Cotton, 5 B Halls. 25c Mason Line, Linen, 6
\$5 % \$6 %	Tubes. Bolier.—See Pipe. Twine. No. 8, Flax Twine, 4 and 46 b Balis. 226 306 No. 12, 4 4 and 56 2056 286 No. 13, 4 4 and 56 2056 286 No. 24, 4 4 and 56 1846 286 No. 24, 4 4 and 56 1856 286 No. 26, 4 4 4 and 56 1856 286 No. 26, 4 5 4 and 56 1856 286 No. 26, 5 4 5 4 and 56 1856 286 No. 26, 5 4 5 4 and 56 1856 286 No. 26, 5 4 and 57 1856 No. 26, 5 4 and 57 1856 No. 26, 5 4 and 57 1856 No. 26,
8 60	Wool.
10 % 10 4 10 %	Cotton Mops—6, 9, 12 and 15 b to dos
10 %	Parallel Fisher & Norris Double Screw
10 %	V Solid Box
10 %	Bonney's dis 40 6 40 810 8 Millers Falls dis 40 6 40 810 8 Trenton dis 40 6 6 40 810 8 Millers Falls dis 40 6 6 40 810 8 Millers Falls dis 40 8 6 6 40 810 8 Millers Falls Millers Fal
10 %	Merrin's
10 % 10 %	Double Screw Leg
k0 %	Saw Filers - Bonney's, Nos. 2 & S
40 % 25 %	Saue Filers
216e 22e 17e	Combination Hand Vise.
44¢ 38¢	Par II
1.50 1.75 60¢ 2.00	Washer Cutters. Smith's Patent
2,00 17¢ 32¢	Washer Cutters. \$\Pi\$ dos \$12.00, dis 20210x10 \$\sqrt{2000}\$ Smitch's Patent. \$\Pi\$ dos \$12.00, dis 20210x10 \$\sqrt{2000}\$ dos \$11.00, dis 333-\$\frac{1}{2}\$ Penny's. \$\Pi\$ dos Pol. \$\frac{1}{2}\$ i.e., dis 55 \$\frac{1}{2}\$ Appleton's. \$\Pi\$ dos \$10.00, dis 60x10 \$\frac{1}{2}\$ Souncy's. dis 30x10 \$\frac{1}{2}\$ Washers. \$-\$see Nuts and Washers.
0 %	Washers.—See Nuts and Washers. Wedges.—Iron
net	Well Buckets, Galvanized. Hills
net net net	Wedges.—Iron № B. 334¢ Steel № B. 34¢ Well Buckets. Galvanized. 8.50 : 14 at., \$4.50 Hill's
\$13 ans 3.50	Wire. Iron— Market. Br't & Ann'ld. Nos. 0to 18dis 7256 & 500 75 \$
3.50 2.50	Market Galvantsed. Nos. 0 to 18. 0 to 18. 65&5 \$ Market Tinned. Tinned list, Nos. 0 to 18. dis 60&10 a Stone Bright and Annealed, Nos. 16 to 18. dis 65&5 \$
0 %	Stone, Bright and Annealed, Nos. 19 to 26, die 65.2 to 5 Stone, Bright and Ann'd, Nos. 27 to 36 dis 725.25 5 Stone, Galvanized. Nos. 19 to 30
5 %	Stone, Tinned, Tinned list, Nos. 18 to 36 dis co&5 \$ Tinned Broom Wire, Nos. 18 to 24 dis co&5 \$ Annealed Fence, Nos. 8 & 9
0 6	Wife
5 %	Mailu's Spid. Wire, 1 %, 1/2 % & 1/4 % sp'ls
5 6	Steel Music Wire, Nos. 12 to 30 15.00 to E, dis 30 \$ Picture Wire
5 %	Wire Clothes Lines. See Lines. Wire Cloth. Green, drap and black best quality. F. 100.
56	Wire Goods.—See Bright Wire Goods. Wire Rope.—List May 1, 1886. dis 3334 5
5%	Haxter's Adjustable "8" dis 35±10 1 Baxter's Diagonal dis 35±10 2 Coes' Genuine dis 35±10 5
5 %	Coes' "Mechanica'" dis 60a 10a3 4 Coes' Pattern, Malicable dis 80a 10 a 80a 10a5 5 Coes' Pattern, Wrought
0 %	Girard Standard. dis 80x10 66 80x10 6 80x10 6 80x10 6 80x10 6 80x10 6 80x10 6
20	Lamson & Sessions' Standard Lamson & Sessions' Agricuitural dis 80 as 80a 10 g Sterling Wrench, Wrought dis 80a 10 g
14¢	Bemis & Call's Fatent Combination
0 %	nemis & Cali's Cylinder or Gas Pipe
0%	Webster's Patent Combination dis 25 s Boardman's dis 25a25a25a20 s
5 %	Alligator dis 25.65 s Donohue's Engineer dis 25 s Acque Bright dis 25 s
0 %	Acme, Nickeled
0 %	Picture Wire
1 % [Staples Hooks, &c dis 80&10 @ 80&25 &

lickel-Plating and Polishing Materials.

SOLE MANUFACTURERS OF

The American Dynamo Electro-Plating Machine.

BEST PLATING MACHINE IN THE MARKET.

ADQUARTERS FOR EVERYTHING IN THE PLATING AND POLISHING LINE

THE LARGEST MANUFACTURERS IN THE WORLD OF

kel Anodes, Nickel Salts, Patent Muslin Buffs, Polishing Lathes, Polishing Felt, Polishing Rouges, Polishing Compositions, Walrus Leather, Wood Emery-Wheels. Platers' Brushes, &c., &c., &c.

ZUCKER & LEVETT CHEMICAL CO., Works, 538 to 564 W. 16th Street, Offices, 36 to 40 11th Ave., New York, U. S. A.

Paris.
in oil.
iron Paint, Bright Red.
Brown.

WHOLESALE METAL PRICES, October 13, 1886.

METALS.

# # ON DUTY: Bars, 8-10¢ to 1 1-10¢ ₹	To: pro-
gided that no Bar fron shall pay a less ra	te of duty
than 85 %. Sheet, 11-0¢ to 15-10¢ % 1b. Be	and, Hoop
ard Scroll, 1¢ to 1 4-10¢ W D. Railroad Be	ars weigh-
ing more than 25 h W yard, 7-10¢ of 1¢ 4	R Tb.
mg more common as a harming at a	

Sta	ndar	d	Ame	rlean	Pig Ire	n.
Foundry	No. 1	X.		p	ton \$18.50	@ 19.00
Gray For	No. 2	Χ.			ton 17,00	@ 17.50
					Iron.	10,00
Carnbroe						@ 19.95
Carnore		•		90	ton 90 50	@ 91 00

NO.		13.C	v	24	2 88		-	-		C. BES		
Carnbroe								. 1	ton	\$18.75	0	19.2
Coltness								. 9	ton	20,50	(0)	21.0
Shotts									ton	20.00		
Hangarnock								- 1	ton	18.75	0	19.0
Gartsberrie								- 16	ton	19.25	0	19.5
Langloan								. 16	ton	19-75	0	20.00
Summeriee								. 90	ton	19.50	0	20.00
Dalmellington.								. 10	ton	18,75	0	19,00
Eglinton								. 10	ton			
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Ha	r 1	FO	n	£	re	D.	EX	1 5	tor			
Common Iron:											0	1 004

Wrought, \$\psi\$ ton, from yard \$19.00 (p 19.5
Har Iron from Store.
Common Iron:
34 to 2 in. round and square * 1.80 @ 1.90
34 to 2 in. round and square. 9 75 2 @ 2.30
1 to 6 in.x % to 1 in
1 to 6 in. x 1/4 and 5-16 W D 2.30 @ 2.50
Rods—% and 11-16 round and sq W to 2.10 @ 2.40
Thomas 3 to 6 m 1 - 16 to NO. 12 # #D 7 .00 KB & 000
Durden's Rest 'Iron, base price w ID 2.9 (II 5.00)
Burden's "H. B. & S." Iron, base price
5 @ 66

Norway Rods
Sheet Iron from Store. Common R. G. American, Cleaned
Nos. 10 to 16.
27
Galvanized 10 20. 10 4968 4968 4968 Galvanized 1 to 24 10 to 24 <t< td=""></t<>
Galvanized, 27 Galvanized, 28 American Russia. D 5 ¢ 534¢ D 5 Å 10¢ B, 5¢ American Russia.
Russia Relied B. B. B. B. A. C. 7

American Cast Steel.
For American Steel, see Pittsburgh quotations Chrome Steel.

netAdamantine Sh Magnet Steel	1008	and	11	11	06	1.										14	66	
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Best Cast														2.1	B	2	15	
2d quality				,		*		5	*				*		Ξ	100	8	
Sheet Cast Steel	, ist	qu	al	It,	y.	4, 10	0 1					0 0			z	B	10	
2d committy				* *			*		8.7		*		* /			-	mer,	72
TIN.—DUTY 1¢ W B; Bars.	Plate	elic i	B	h	96	1	l., 25	1	a	e o	80 0.	(12		8.1	ad	1	28)	D

2d quality		*****	M B	14
3d quality			OR IN	1216
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			00	2314
Stratts		10 235g	1 CD	28 4
Stratte English		ID	¢ @	24 4
Engush		D 24	00	25 4
DBC			-	
Charcoal Tin				
I C 10x14 225 sheets	box	\$5.00	@	6.5
I C 12x12 225 sheets	6.6	5.00		6,50
1 C 20x28, 112	**	10,25	@	14-00
1 X 10x14 225 sheets		6.00	60	9.00
25 40m 40 00% aboots		6,00		9.00
V 14v90 112 "		6.00	(0)	9,0
1) C 1914 v 17, 100 "		5.00		5.5
1 X 14x20, 112 " U C 1234x17, 100 " D X 1234x17, 100 "		6,00	0	7.00
For each additional X add	44	1.35	GD.	200

	D C 13/6x17. 100 " D X 13/6x17. 100 " For each additional X add	44	1.35	999	7.0
	Coke Tin P	lates.			
	Be	ost.	0	rdi	ary
	I C 10x14	4.63	\$4.40	60	4,50
	I C 12x12	6.00	4.60	_	4,100
	I C 20x25 112 sheets		9.00	0	9,50
	Terne Plat Prime Char. 2d. o	quality			**
	I C 14x20M.F. \$6,57			- 0	. UNIO
	I C 20x28			4.	.50
	X 14x20. 5, 5 66 6,00 I C 20x28. 8.75 66 9.30 X 20x28. 11.00 66 12.00			a 8,	.70
	Tin Boiler P.				
-	1XX 14x26, 2 sheets for No. 7, 1 1XX 14x28, 2 " No. 8, 1XX 14x81, 2 " No. 9,	12 shee	ta @	8 8	12,00 18,00 15,00

A SULED
Tin Boiler Plates.
1 X X 14 x 26, 2 sheets for No. 7, 112 sheets.
COPPER.—Dury: Fig. Bar and Ingot, 44: Old Copper, 34 w m. Manufactured (including all articles of which Copper is a component of chief value), 35 x ad valorem.
Ingot, Lake
Ingot Anchor " 1094# @ 1194#

to ox, ber admire room and montant b act you
14 and 15 oz. per square foot
12 and 12 oz. per square foot # 10, 20¢
10 and 11 oz. per square foot 10, 21¢
TINNING.
Sheets, one side, 10, 12 and 14 x 48each, 6¢
Sheets, one side, other sizes W square foot 2149
For tinning both sides, double the above prices.

Cold Rolled Sheet, All Sizes.

Sheets, one side, 10, 12 and 14 x 45 each, of
Sheets, one side, other sizes & square foot 2560
For tinning both sides, double the above prices.
For tinning boiler sizes, 9 in., 14 x 6J each, 15¢
For tunning boiler sizes, 8 in., 14 x 56each, 120
For tinning boiler sizes, 7 in., 14 x 62each, 120
Sheathing Copper. (14 x 48.)
Wat told

16 oz. to sq. ft. and heavier, per lb. 14 oz. and up to 16 oz., per lb 12 oz. and up to 14 oz., per lb Tunning, 6 cents each.	.18	Cold. Rolled \$0.18 .19 .20
Copper Bottom	и,	
Pits and Flats, 14 oz		(i) 15 214 (ii) 15 224
O'Neill's Patent Planished	Coppe	rNet

O'Neill's Patent Planished Copper	vet.
14X46	
14 and 16 oz. and heavier. 27¢ By the case. W B	264
12 og. and lighter30# " " "	294
Boiler Sizes.	
7 in., 14x52. 8 in., 14x56. 9 in., 14x60.	
and 16 os, and heavier. 29¢ By the case. W fb	284
And all sizes not over 20 in. wide.)	-
24x48 and 30x60.	
and 16 oz. and heavier b	316
000	

And all sizes not over 20 in, wide.) 24x48 and 30x60.	
and 16 oz. and heavier	31¢
OS	34¢
'lanished Brass same price as Planished Copp	er
Copper Wire, -(See Wire,) Sheathing Metal.	

Yellow	Sheat	hing M	etal,	N 3D		18¢ @	
BR	ASS	AND	GE	RMA	N SIL	VER	
Brown	& She Engl	irpe's (iauge ige the	the St	andard dard for	for Me Wire.	tal;
					ust, Ja		

	LEADDury: Pig, \$2 9 100 b; Old Lead, 20
	b : Pipe and Sheet, 30 W D.
	Pig 4.75 @ 4.90
	Bar
-	
r	Block Tin Pipe
)	Tin Lined Pipe 15¢, dis 20
	Sheet
	Shot, # bag, 25 b Drep, \$1.60; Buck, \$1.8
	Chilled Shot, # bag, 25 D
	ANTIMONY.
)	Hallett's # 10 816 @ 9
)	Cookson " 916 @ 11
)	SPELTER-Duty : Pigs, Bars and Plates. \$1.5
	39 100 lbs
	American, cash
i	Bergenport9
١	ZINC-Duty : Pig or Block, \$1.50 \$100 lbs
	Sheet, 236¢ W D.
	600 D Casks
	Zinc.—Open
	Zinc Tubingdis. 10 @ 20 1
ı	Zine Tubing-Dis. 25 s.
	Plain
	Fancy
1	Scotch and Extra Patterns
1	
ı	N. P. U 9 b 636 @ 76
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Clark N A W.	Acres Wheel					0.4
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" Fence V	Wire, No	os. 8 a.	nd 9. > d	is	67	68
" Grape						-
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Cents	98	29	30	82	38	35	87	40	45	55	
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	to 86.								75	@ 7	5 %
Galvani	zed St	one	Wir	e				. 61		- 8	10 ×
			404	8-	WW7 6	re.					

Common

		High Brass	Low	Copper.
All	Nos. to No. 16,			-
	clusive	\$0.22	\$0.26	\$0,30
	17 and 18	.28	.387	.31
44	19 and 20	. 24	.28	.32
46	81	.25	.29	.38
66	22	.26	.30	.34
06	28	.98	.32	.36
54	24	.80	.84	.38
64	25	.82	.86	.40
	26	.85	.39	.43
	27	.88	49	.46
44		42	46	.81
66	28	45	40	54
64	29	.48	.40	.69
64	80		.036	.02
	81	.51	.55	.01
44	82	.55	.59	.78
64	88	.59	.68	.82
6.6	84	.64	.66	.95
6.6	85	.70	.74	1.30
44	86	.76	.80	1.50
64	87	1.00	1.04	1.70
44	88	1.80	1.84	2.00
44	30	2.00	2.00	8.25
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	Spring Wire, 2 cents be	er pound	advance.	Whit
	l ened Wire. 3 cents per pot	ind adva	nce. Flat,	equare
	and Half-Round Wire, 4	cents ad	vance on	Hound
	Wire, Fancy Wire, not les	s than 10	cents adv	ance on
	Round Wire. Spooling	on one-r	ound Spe	ools, 12
	cents per pound extra.	Spoolin	g on ten	-pound
H	Spools or more. 2 cents pe	er pound	extra.	
ı	MISCELLANEOUS	TINNE	HS' ST	OCK.

1						der.			
16 8	36.	War	ran	ted				15	@ 15%#
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In h	and in	new	lint.	De	e 10	1881	20,	Contact.	.dis. 45 %
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100	36	x	60	to	40	×	60	31.00	26	.00	26	.00		_

100 36 x 60 to 40 x 60	31.00	28.00	26,00								
Double Thick.											
-	1st.	2d.	3d.	450							
Sizes.	EFH	I E H	нн	H B							
25 6 x 8 to 10 x 15	\$14.00	\$18.50	\$13.00 15.25								
40 11 x 14 to 16x 24 50 18 x 22 to 20 x 30	22.00	20.50	19.00	-							
54 15 x 36 to 24 x 30 60 26 x 28 to 24 x 36	26,00	24.00	21.75								
70 26 x 36 to 26 x 44											
84 80 x 52 to 80 x 54 90 90 x 56 to 84 x 56		29,00									
94 94 x 58 to 84 x 60	85.00		31,00 34,00								

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Discount 75&10 @ 75, 10&5 s.

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ı	(-		Cente	er m.
	White Shirt Cuttings,	No. 1			654 @	634
1	44 44 1	No. 8			634 @	584
1	Mill Assorted Whites				434 18	5
1	Unbleached Muslins				5	036
1	City Whites. No. 1				336 @	*
ł	City Whites. No. 2				134 @	8
1	New Canton Flanneis.					934
ı	New Seconds, light					4
I	dark					224
I	Cotton Canvas				414 19	436
1	Linen Cauvas No. 1				1	436
1	Seconds, City No. 1				156	196
Į	Seconds, City No. 2				1 0	114
ı	Colors, # cwt				40	80
ł	Mantia Rope				274 @	256
ı	Tarred			*****	23-4 @	294
I	Gunny Bagging, No. 1 No. 2				1% @	144
ı	No. 2.				1% @	136
ł	Kentucky Bagging					224
ı	Buriap Bagging, No. 1				1% @	134
ı	Tar Shakings				154 @	8
ł	Hemp Twine Stock	STREET BO			354 GB	314
ı	Hard White Shavings,	No.L			334 @	4
I	Soft White Shavings, N	0. 1		*****	254 @	294
ı	White Shavings, No. 2, 8	Soft			254	234
ł	Mixed Shavings, part W	hite		******	1% @	2
ı	Ledger and Writing	*******		*****	294 @	2%
I	Solid Stock	*******		*****	196.00	136
ı	Book Stock. No 1, light		*****	******	1 .	150
ı	Old Newspapers			*****	334 @	116
ı	Pure Manilas		*****		136	146
ľ	Bogus Manilas and Hard	dwares,	CWE		00 • 1	00
ı	Commons, № 100 b				55 @	75
ı	Binders' Board Cuttings				76 @	- 46
Ī	Straw Board Cuttings.				00 @	75
ı	PAINT	S. OII	180	Scc.		
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156 @ 11 (Purple
ates, \$1.50	Ground in oil, Bright Red. 65
	Hed H 514
.4% €@ 54	" " Purple" 6
	7.445
100 lbs.	
	Orange Mineral
50 @ 5.754	Red Lead American
.6 00 6340	Venetian (Eng.) dry
.6 @ 634¢	in oliasst'd cans, 119; segs, of
	" Indian Dry
	Rose Pins. 10 @ 13
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ndles.	American, Common
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	Bleached Whale, # gal85¢
	Bleached Whale, # gal
14 23 26	" Elephant, W gal
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5 36	Empire Cylinder 402
5 55	Engine286
70 @ 70 %	Fish Oil, Fressed
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Tallow
Sundries.
Bundries.
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Crucibles No. 14 and upward, per number. 4 @ 4% Grain Emery, 300 b kegs. 4 @ 4%
Prometrical State of the State
CHILD, W DIES
Sheet
Glaziers' Points, Zinc. # box
" Damar Sul
" Damar
hitsand Wood ordinary, & D
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Mineral Wool, ordinary,
Pine Tar, bbis
Pitch
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or Gun Powder Gunzing, v = 104
Shot Polish # B
Shot Polish D
Rosin-Common and Good-Strained \$1.40 @ \$1.70
9 & H 90 or 90 75
* 1 & K
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Stove Folish, Dixon's 5.50
4.00
Spirits furbentine, # obi. Si
Waste, No. 1 Cop
Waste, No. 1 Cop
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1		HARRING.		門高插鄉	BALL SHI		
- 8			TERCH				
- 5	10	CK-C	ORNER	SHI	ELF	BOX	ES.
- 8		8	crew (Cases	. dec	00	
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- 2		8.	H.	GR	DE	IN.	
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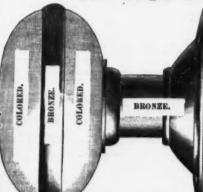


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ley, the desi narr spectors of the cate close face segment show centred of the face of the

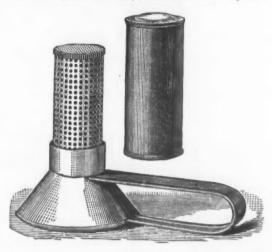
Fig. 2. it a bet none; t very rap 2, 214 a

> This a accompa by the in N. J. In pieces, the tached the spiral s bar B, by long, and which is frame, th over one tration the book, the inside the simply att

NOVELTIES.

Safety Lamp.

hooks, and it will also be observed that the force of the spiral spring may be increased or diminished according to the position on We illustrate below a safety lamp or device for lighting up which is manufactured by Edward H Jacobs & Co., Danielsonville, admits of varied adjustment, according to



Safety Lamp.

Conn. It is intended for lighting gas in factories and other buildings where it is dangerous to carry about an exposed light. The cut shows the lamp with the extinguisher off and ready for use. The lampisheld over the gas jet, and when the gas enters the perforated protector it is in stantly ignited. These lamps are described extends the process of the stantly ignited. These lamps are described extends the stantly ignited to a stantly ignited. These lamps are described extends the stantly ignited. These lamps are described extends the stantly ignited to a stantly ignited. These lamps are described extends the stantly ignited to a stantly ignited to a stantly ignited. These lamps are described extends the stantly ignited to a stantly ignited utility as a safeguard against fire is men

The Victor Frame Pulley.

The Palmer Mfg. Company, Troy, N. Y., are mak ng th s article, which is illustrated in the accompanying cut, Fig. 1. This pul-



Fig. 1 .- The Victor Frame Pulley.

ley, which is referred to as a companion for the company's Common Sense Pulley, is designed for frames for thin sashes where a narrow mortise is necessary. One of its special features is the chisel edge on the special features is the chisel edge on the case, adapting it for cutting its own mortise. The manner in which this is done is indicated in Fig. 2. Tubular swells on the case closely fit the auger holes in the jams, the face-plate being composed of corresponding segments of circles. The pulley has also marking spurs on one edge of its face, as shown in Fig. 1 by more of which the shown in Fig. 1, by means of which the centers for the auger holes are readily laid off on the wood. If deemed necessary brads may be driven diagonally in the jam, the heads fitting in the countersinks in the ends of the pulley. The manufacturers allude to the following points of excellences in this pulley: That only three holes are required, in boring which for 1 1 and 2 inches a %-inch bit is used; that the face-plate gives

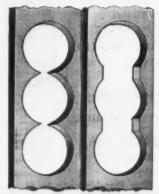
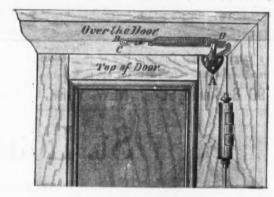


Fig. 2.-Mortise for Victor Frame Pulley.

it a better appearance than pulleys having none; that it is held more firmly in the frame than other pulleys not fastened with screws; that it can be applied to the frame It is made in four sizes, 134, very rapidly. It is ma 2, 2¼ and 2½ inches.

The Hook Door Spring.

This article, which is represented in the ecompanying illustration, is manufactured mpanying illustration, is maintractured the inventor, W. S. Barlow, Paterson, It consists, it will be seen, of three es, the stud or bracket A, which is attend to the hinge side of the door; the spiral spring D, which with the loops at either end is 7 inches long, and the hooked bar B, by which the spring is connected to the face, as it looks from a distance, is an the door frame. This hook bar is 5 inches eager, high-bred one, with pure Greek featong, and has five hooks by the end, one of which is attached to the screw C in the door frame, the loop on the spiral spring passing over one of the other hooks, thus giving the desired tension to the spring. In the illus-tration the spring is attached to the second



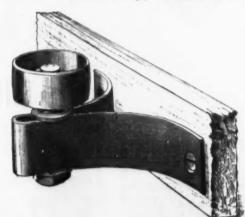
The Hook Door Spring.

made in two sizes, No. 1 with strength sufficient for most doors, and No. 2 for large for natural-gas mains. Within a month the heavy doors

Lane's Patent Adjustable Stay Roller.

This article, which is manufactured by Lane Broz., Poughkeepsie, N. Y., the manufacturers also of Lane's steel anti-friction hangers, &c., for whom John H. Graham & Co., 113 Chambers street, New York, are agents, is illustrated in the accompanying cut, which, without detailed description, suffi-

concern expects to nearly double its force.



Lane's Patent Adjustable Stay Roller.

ciently indicates its special features. It is in Tennessee, are refitting the Clay street made wholly of steel, except the wheel, and Rolling Mill, in Louisville, idle for several may be adjusted, it will be seen, by means years, and will put it into operation about of a nut to the thickness of doors, either before or after fastening to the building. The shape is alluded to as insuring great strength. It is also pointed out that it is thoroughly braced, and not liable to derangement under hard usage. This article is made under a recent patent, bearing date

How the great bronze Statue of Liberty looks on its pedestal is a question of immediate interest. An observer says: "It was never quite clear before the goddess's head never quite clear before the goddess's head and neck were put in place, just in what direction she would look. Her back is surely now to Communipaw, and her face toward the Narrows and Sandy Hook. It would puzzle a modiste to tell at a glance what sort of drapery the goddess has on. The heavy folds from the waist down look both ancient and modern—a Roman woman's tunic run to length of skirts, perhaps. And if the lower half betrays the tunic, upper, even more distinctly, is a Roman Its cumbrous folds weigh on the breast and shoulders and gather in a bulging knot under the left arm. The dress is masculine almost, though not more so than the bust and face, the goddess, it must be remembered, having, like the goddess Minerva, the qualities of a man and a woman mixed. eager, high-bred one, with pure Greek features which the rich hair gathered in a loose knot above the neck serves only to intensify. There are one or two woodenish curls behind the ears, but most of the rough lines have come out finely. The right arm is held tration the spring is attached to the second almost perpendicularly, and the hand is book, the remainder of the hooked bar being turned so that the palm faces outwardly. This would be awkward, the critics say,

plate and bar iron.

The Laclede Rolling Mills, St. Louis, are still idle, and no action is known to have been taken looking to a resumption operations.

The Penn Carbon Iron Company, of Mercer County, Pa., with a capital of \$200,000, have been chartered at the State Department.

The Ward Axle Brake and Coupling Company, of Pittsburgh, whose works are lo-cated at Monongahela City, Pa., will be one of the competitors at the coming brake tests to be held at Burlington, Iowa, commencing April 1, 1887. They will enter a 50-car train, equipped with their brakes, couplers and accommodating wheel shoes, including motive-power and caboose.

Information comes from Bridgeport, Conn., that the Howe Sewing Maching Company intend to move their factory from that city to this. The plant in Bridgeport cost \$500,000. The cities of Cincinnati and Cleveland have each offered inducements for the removal of the establishment thither. World.

The Amherst Hydraulic Motor Company, The Amherst Hydraulic Motor Company, Holyoke, Mass., have recently received an order from Geo. S. Hutchings for a motor to be used in connection with the organ in Dwight Hall, Yale College; also one from Hilbourne L. Roosevelt for motor for the organ in Metropolitan Opera House, New York.

The Boston Steel Wire Brush Works, F. W. Sheridan, manager, 82 Sudbury street, Boston, Mass., are making a line of steel wire brushes for cleaning castings, and also manufacture a switch and curve broom for

MANUFACTURING.

Iron and Steel.

The United States Iron and Tin Plate Company, at Demmler Station, near Pitts-burgh, resumed operations in all depart-ments on the 5th inst., with sufficient or-ders on hand to keep them busy for six

The Braddock Wire Company, of Pittsburgh, which commenced operations some two months ago, inform us that they are compelled to run night and day to keep up with their orders.

The strike which occurred some time ago at the Isabella furnaces, Pittsburgh, has been settled, the men having returned to work at the company's terms.

Daniel J. Sullivan, a well-known scrap-iron dealer of Pittsburgh, died at his residence, Park Place, East End, on the 8th inst. Mr. Sullivan was connected for a number of years with the firm of H. Lloyd, Son & Co., of that city.

The Warren Tube Company have recently been incorporated at Warren, Ohio, with a capital stock of \$200,000, for the purpose of manufacturing compressed iron and steel tubes. They expect to commence operations in January, 1887. The following offi-cers have been elected; N. Monsarrat, president; T. M. Cornell, vice-president; J. H. Faxon, Jr., secretary; Wm. A. Palmer, treasurer, and Winslow Alderdice, general

The new firm are Wm. B. Orr & Co., and are composed of William B. Orr, Charles E. Orr, J. F. Robinson, Curtis Long and James Henry. It is their intention to enlarge the works at once and make a specialty of the Curtis Long high-speed engine. They will, in addition, make patterns, models and all kinds of experimental machinery to order.

The fuel economizer from E. Green & Sons, Manchester and Wakefield, England, recently furnished to the Calumet and Hecla Mining Company, is composed of 52 sections, each containing 10 lengths of 4-inch pipe, 10 feet long, making 5200 feet of 4-inch pipe in the economizer. It is fitted with crab-jaw scrapers which work up and down automatically and keep the pipe on the outside clear of soot and all other dirt. It will be ready for use some time in November, and if it does what is claimed for it the sav ng on fuel to the Calumet and Hecla will be very considerable.

Two of the Wainwright Mfg. Company's (Boston) feed-water heaters have been in use at the Cumberland and Presumpscott Mills, Cumberland Mills, Me., for the past six months, with very satisfactory results.

The Mason Machine Works, Taunton, have just completed a hitching engine for the Boston and Maine Railroad.

The Baldwin Locomotive Works, Philadelphia, are at present extremely busy and working up to about their full capacity, turning out some 13 locomotives per week, or at the rate of fully 650 per annum.

The Chicago Drop Forge and Foundry Company have been incorporated, with a cap-ital of \$200,000. Incorporators: Charles L. Brooke, Edward R. Swett and Albert J. Norton.

The L. B. Flanders Machine Works, of Philadelphia, have recently shipped the fol-lowing: Patent portable valve-seat rotary planing machines to the Texas and Pacific Railway, Richmond and Danville Railway, Canadian Pacific Railway, Buffalo, Roches-ter and Pittsburgh Railway, Baldwin Loco-motive Works, O. L. Packard, Milwaukee, Wis. Patent portable crank-pin machines to the Canadian Pacific Railway, New York and New England Railway and Manning, Maxwell & Moore, New York. Patent portable locomotive cylinder boring machines to the North Georgia Improvement Company, Morgan's Louisiana and Texas Railway, Baldwin Locomotive Works and Manning, Maxwell & Moore. Otto's patent flue-cleaning machine to the Pennsylvania Company and Chicago, St. Louis and Pittsburgh Railway. Gipp engine to St. Louis, Arkan-sas and Texas Railway. Radius link planer attachment to the Tanner & Delaney Engine Company and Manning, Maxwell & Moore. The company find inquiries numerous, and hope for a fine fall and winter's trade.

The Colorado Midland Railway Company intend to build shops at Colorado Springs,

The Sedgwick Machine Works Company will erect new buildings, to cost \$11,000, at Poughkeepsie, N. Y.

Warner & Swasey, Cleveland, Ohio, have let contracts for a new brick addition 70 x 45, three stories, with tower, on account of increasing business. They are very busy on Standard brass-working lathes, Monitor lathes, screw machines and other tools.

The Valley Machine Company, East-hampton, Mass., are furnishing all the ma-chinery, pumps, &c., for a new rubber fabric mill being built in Easthampton by George S. Colton.

The Pratt & Whitney Company, Hartford, Conn., are successfully introducing a metal band saw and a centering machine with two spindles, both of which are proving popular. The demand for small tools is 25 per cent. better than last year.

Hardware.

The new tubular axle works and buttwold mill being built by the National Tube Works Company, of McKeesport, Pa, will be completed in a few days. A large number of additional hands will be employed when the new works commence operations.

The Star Machine Company, of Buffalo, N. Y., are having a large demand for their forges and blowers from all parts of the

The Colby Wringer Company, Highland-ville, Mass., manufacturers of the Colby wringers, sell no goods to the trade, disposing of the wringers only to their agents, giving them the exclusive control of sales in the territory assigned to them, and binding them to sell only in that territory, and only at full retail prices.

Atwood Brothers' Mfg. Company, Ames bury, Mass., in addition to their line of fine carriage mountings, have recently added the manufacture of carriage lamps, of which they are making several attractive patterns. They advise us that they are busy on orders for these goods, and on sleigh screens and other specialties.

In 1878 the Champion Iron Fence Company, Kenton, Ohio, issued their general catalogue in the form of a small 30-page pamphlet which, compared with their catalogue recently issued, embracing the five special ones, they issue relating to different lines of fence, cresting, architectural and jail work, indicates the progress and growth of the company. In addition to other points of interest the company call attention to the fact that by the introduction of the present style of iron circular stairways the necessity of having first-class mechanics to put up the stairs is in many cases obviated, but apparently the change decided upon is as it is claimed that any person of fair as above indicated.—Chicago Industrial capacity can put up a flight of these stairs, although he may never have worked in iron a single day. This feature is referred to as

spring can be tightened or loosened by with a man, but with women and goddesses, in the Allegheny Machine Company, of simply attaching it to one or other of the of course, such things are beyond solution." Allegheny City, have recently changed hands.

The Northfield Knife Company, whose hands struck last spring, are reported to have a moderate and gradually increasing force of new men at work.

The Standard Chain Cable Works, of which H. L. Fearing & Co., Boston, are proprietors, are closed at present, the manu-facture of chain and coupling links being temporarily discontinued.

Miscellaneous.

The Tacoma Coke Company, whose mines are at Wilkeson, Pierce County, Wash. Ter., after, experimenting about two years to manufacture coke out of their coal, have begun the erection of 40 ovens, 10 of which are to be completed at once. This is the only coke manufactured on the Pacific are to be completed at once. This is the only coke manufactured on the Pacific Coast, and is said to be of excellent quality.

The total shipments of coke from the Connellsville region last month were 22,220 cars, as against 25,565 cars during the month of August, though the average daily output for each working day was slightly higher last month, being 1058 cars for Sep-tember and but 1021 for August. Of the September output the syndicate marketed 16,100 ears and the outside producers 6120 10,100 ears and the outside producers 6120, as against 17,690 and 7875 cars respectively for August. Of the 10,930 ovens reported available in the region there were but 566 idle last week, classified as follows: Pool ovens, 100; furnace ovens, 100; independent ovens, 239; old Mt. Braddock Works, idle for several tears. idle for several years, 127.

A new glasshouse is to be erected on Carson street, above Brownstown, by the American Glass Company, of Pittsburgh. The company, who were organized recently with a capital stock of \$20,000, will decide on their plans in a few days and commence work at once. They expect to give employ-ment to 100 men, and manufacture bottles and fruit jars.

Lake shipments of iron ore from the mines of the Marquette, Menominee and Gogebic ranges for the past week have of which went from Marquette, 56,294 tons from Escanaba, 2725 tons from St. Ignace and 27,696 tons from Ashland, Wis. The and 27,090 tons from Ashiana, wis. The report from Two Harbors, Minn., failed to reach us on time this week. Estimating the shipments from that port at 7000 tons (it will exceed that), and the shipments of Lake Superior ore for the season to date aggregate 2,802,186 gross tons.—Marquette (Mich.) Mining Journal.

The Bellefonte Glass Works, at Bellefonte, Pa., was totally destroyed by fire on the morning of the 10th inst., throwing 75 men out of employment. The loss on real and personal property is estimated at \$50,000, on which there is an insurance of \$20,000 on buildings and stock. The capacity of the works was 1000 boxes per week. The works will probably be rebuilt at once.

The Mississippi Glass Company, of St. Louis, began working on Monday, the 4th inst., from their remodeled to pot furnace, with facilities complete in every way for in-creasing their output by some 6000 feet a day. The furnace is of the latest improved and most efficient gas type, and all other parts of the new plant are admirably ar-ranged for qu ck and successful work. There are eight annealing ovens and two casting tables. The latter, together with their cylinders, are provided with apparatus for heatinders, are provided with apparatus for neating with steam or cooling with water, the object being to save time and make the greatest use of the tables possible. With both furnaces in operation the Mississippi Company have a daily capacity of 6000 feet of cathedral glass and 4500 feet of skylights.

—Age of Steel.

The St. Louis Metal Company, of St. Louis, a new organization, started a foundry last week for the production of Babbitt metal and solder.

The Pennsylvania Railroad Company have just placed an order for 2000 additional freight cars and the Baltimore and Ohio Railroad Company recently placed an order with the Milton Car Company, of Milton, Pa., for 1000 freight cars.

Under the style of Gilmar, Hartwell & Co., Louisville, Mr. Gilmar and R. M. Hartwell Louisville, Mr. Gilmar and R. M. Hartwell have formed a partnership for the transaction of a general commission business and as special agents for the purchase and sale of pig iron, coke, fire-brick, manufactured iron and steel, nails, wire and general railway supplies, and the sale of old material, such as wheels, rails, scrap iron and brass. Mr. Gilmar has been for several years actively connected with the iron commission business in Louisville, and Mr. Hartwell has business in Louisville, and Mr. Hartwell has been for the past 10 years secretary and treasurer of the Ohio Falls Car Company, of Jeffersonville, Ind.

The canning business has grown to enormous proportions, Maryland and California taking the lead. The total for Maryland comprises 150,000,000 cans per annum, a single establishment in Frederick City putting up of corn alone 25,000,000 cans a year. Other Southern States have only latterly gone into the business. Around New Orleans, both in Louisiana and Mississippi, a number of canneries are shipping North and West a large number of the delicacies, oys ters, shrimps, preserved oranges and simi lar products of that region. Relative to the pack of salmon the Alta California says: The total pack in Alaska is estimated at from 125,000 to 130,000 cases, against 75,000 last year and 54,000 in 1884. The pack has last year and 54,000 in 1884. The pack has been very unsuccessful in every section ex-cept Alaska. The shortage of this year will be about 125,000 cases. The principal loss is on the Columbia River, where there is a deficit of fully 100,000 cases. The entire pack will not be over 600,000 cases, or somewhat over one-half that of 1883.

The British Parliament, it is said, will be asked to subsidize the proposed line of steamers for the Canadian Pacific Railway Company to cross the Pacific, and six ves-sels for the route are approaching comple-tion on the Clyde. Much of the traffic that now goes to the Pacific Mail Line from British ports in the East and Australia and to American transcontinental railways will be competed for by the new line.

Lightning Holes.-Professor Brun has Lightning Holes.—Professor Brun has published in the Archives de Genève an interesting study on the so-called lightning holes to be found in the High Alps. He and other investigators have found them at hights at from 3348 to 4000 m., or between 11,000 and 13,000 feet, above the sea level. Usually they are found on summits. Sometimes the rocky mass, which has been vitrified in the passage of the electric fluid, presents the appearance of small scattered pearls, sometimes of a series of semi-spherical pearls, sometimes of a series of semi-spherical cavities, only a few millimeters in diameter. Sometimes there are vitrified rays going out Sometimes there are virined rays going out from a central point to a distance of 4 inches or 5 inches. Sometimes a block detached from the mass appears as if bored through by a cannon ball, the hollowed passage being quite vitrified. The thickness of this vitrified coating or stratum never exceeds 1 mm., and is sometimes not more than the quarter of that depth. The varying colors which it presents depend on the qualities and composition of the rock. The same may be said as to its transparency. On the Rungfischhorn the glass thus formed by the lightning is black, owing to the quantity of lightning is black, owing to the quantity of actinolith which the rock contains. It is brown on La Ruinette, the rock consisting of feldspar mixed with gneiss containing chloride of iron. Under the microscope these lightning holes display many interior cavities, which must be attributed to the presence of water in the rock at the moment of melting by the electric discharge. This vitrified material has no influence on polarized light.

Colonel Majendie, C. B., Her Majesty's inspector of explosives, has come to this country, in compliance with instructions from his Government, for the purpose of traveling through the oil regions and study ing the laws in different States touching the storage, distribution and regulation of mineral oils and other highly inflammable liquids. He states that before the Exliquids. He states that before the Explosive act was enacted, 10 years ago, England and Wales had a death-rate of 43 per cent. per year in the manufacture of explosives, whereas during the last eight years of the act the entire death rate in the whole of the factories in England, Scotland whole of the factories in England, Scot-land, Ireland and Wales included was only 814 per cent. a year. Last year there was a loss of life of only five out of every 7000 employed in these manufactories.

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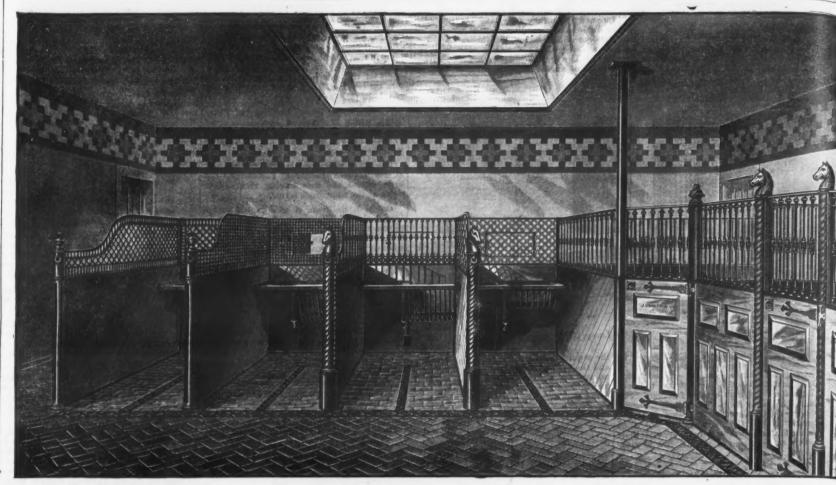
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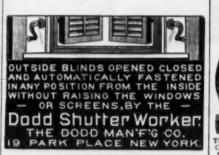
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THE WEEK.

The Aqueduct Commission estimate the necessary expenditure on the work for 1887 at \$5,000,000.

The new Edison machine shops at Sche nectady were opened on Monday and will shortly give employment to upward of 1000 men. The plant consists of two brick buildings, one 80 by 200 and the other 100 by 220 feet. A third building, 147 by 50 feet, will be erected.

A member of the firm of H. Disston & Sons, the Philadelphia saw manufacturers, was in Pittsburgh last week examining the manufacturing facilities offered by natural works to that city.

Governor Hill on Saturday commuted the sentence of the Theiss boycotters to 100 days' imprisonment in State prison, which erm expired on Tuesday.

The New York Chamber of Commerce contributes for the relief of Charleston \$90,000. The Relief Committee have received 18,000 applications for money to aid in repairing houses, which represent more than 50 per cent, of the total number of houses in the city.

The workmen in the three locomotive establishments at Paterson are to work only nine hours a day hereafter.

Sixteen thousand workmen in the packinghouses at Chicago went on strike against the resumption of 10 hours' time for a day's work. The knit-goods manufacturers at Cohoes and elsewhere have decided to lock out their operatives on the 16th inst., which may render several thousand workpeople of both sexes idle for some months.

The Central Labor Union want the coal men indicted for "limiting the output of coal and arbitrarily fixing its price, in violation of the conspiracy laws of the State."

The iron roof of the ladle repair shop of the North Chicago Rolling Mills, at South Chicago, fell on Sunday morning. Near the repair shop is the steel converter which, when a blast is made, pours out a stream of sparks, nearly all of which alight on the roof of the repair shop. The "spits," as the sparks are termed, are allowed to remain there during the week until Sunday, when the stuff is shoveled off. At the time of the accident five men were on the roof and others were inside, when the entire structure suddenly collapsed. Three men were killed and seven others badly injured. Had the accident occurred on a week day the loss of life would have been appalling, as over 200 men worked in the spot now covered with débris.

The first cargo of petroleum in bulk carried by a steam vessel from the port of Philadelphia will be loaded by the new iron steamship Gluckauf, from Shields, England. She was built at Newcastle on-Tyne, and has a capacity of over 800,000 gallons.

A. S. Hewitt, the iron manufacturer of this city, represents several strong Democratic factions as candidate for Mayor.

Charles O'Donnell, the well-known nitroin that city. While adjusting the weight at Huron, 105 tons. the mouth of the casing it slipped, and he was hurled 50 feet in the air, causing fatal

The financial situation in France, according to the London Standard, makes a dark picture, largely due to wild extravagance in public works, for which object there has the funded and the floating debt gradually grew until it stands at somewhere about £140,000,000—the largest debt of the kind, the trade of the country to keep the Government afloat, and the occasional fundings of little bits of the floating debt but stave off, if if they do stave off, the day of reckoning.

to \$3 a day by order of the Executive Committee in that department of labor.

The American Tube and Iron Company, at Youngstown, Ohio, on the 9th inst. made the first test in bending wrought iron for tubing at their new plant in the south eastern part of the city. Three hundred men are now engaged in the process of manufacturing wrought-iron tubes for natural-gas wells. The product for the present will be 8-inch pipe, for which there is a large demand. It is expected that with the adindustrial establishments will be erected.

Mr. Langston, ex-minister to Hayti, heads a movement among the colored men of the South, which has for its object the holding of a national exposition of the products of the race. The scheme will be further developed at the colered men's tenth annual fair in Raleigh, N. C., next month, on which occasion United States Senator Blair, of New Hampshire, will be the chief speaker.

The master builders' association of Boston are obtaining the signatures of all hour rather than by the day. The principles on which they combine are represented to be the same that control workmen in similar novements.

The Assisted Immigration act of 1886 is declared constitutional by Judge Brown, of Detroit, in a decision rendered 11th inst. the building trades and the master plumbers' The case was that of the United States recover a penalty of \$1000 provided for in the act. Mr. Craig imported ship carpenters from the Province of Quebec during the shipyard strike of last spring. Defendants' counsel had interposed the objection that the entire law against importing labor was ungas, with a view to removing the melting constitutional. The question as presented to the court involved not only the Craig ease, but was a test upon which the whole law was to stand or fall. In an elaborate opinion the court overrules all the points raised by the defendant.

> Seven artesian wells lately sunk in Newon, Mass., yield 300,000 gallons of pure The contractors were paid at water daily. the rate of \$5.25 per 1000 gallons in the 24 hours.

> The steamship Anchoria broke her shaft when five days out from Glasgow, bound for this port with passengers and a heavy cargo. The ship was thrown on her side and the steering gear disabled. In this plight she drifted from September 22 to October , when temporary repairs were completed, but subsequent breaks on two occasions rendered the engines useless. Finally a steamer from St. Johns, Newfoundland, took her in tow when 25 miles from that port.

> Idaho Territory, its resources and growth, form the topic of Governor Stevenson's annual report to the Secretary of the interior. Population is rapidly increasing and the crops have been good. Mining interests are prosperous. Fruit products cannot be excelled by any region east of California. As an evidence of growth the fact is stated that to years ago there were less than 3000 children of school age in the Territory; now there are 18,000.

> On all steamers of any size built at Roach's shipyard, says the Chester Times, the specifications call for a fresh-water tank with a capacity for 10,000 gallons. This was usually carried in three tanks of convenient shapes for stowing and of sizes to admit of their being lowered through the engine hatch, their position being somewhere abreast of the engines. This arrangement has been greatly improved upon by building a tank of the required capacity, firmly securing the same to the engine floors and to the lower deck, one side being formed by the engine inclosure bulkhead itself. Coal is stowed all around the tank in the bunkers, and hence the tank becomes part and parcel of the ship itself. It contains perforated bulkheads and wash plates, so as to break the force that such a quantity of water would have by the rolling of the ship. It is easy of access from the engineroom by a water-tight manhole. The Alliance was the first to have such a tank, and the new Mallory boat is also to have one

The September product of the Lake Su glycerine manufacturer, of Findlay, Ohio, perior copper mines was as follows: Calumet was fatally injured while attempting to and Hecla, 2785 tons; Quincy, 375 tons; perior copper mines was as follows : Calumet shoot the water well at the refinery works Franklin, 216 tons; Atlantic, 214 tons

The tower of the Sheepshead Bay Water deposits were first appropriated, and then from the ground. E. B. Robinson, of Boston, It was capable of holding 4,000,000 gallons long denied us." of water and was to cost \$21,000.

Deep mining on the Comstock lode is The wages of lake seamen are advanced refusal of some of the companies to pay their proportion for keeping the ponderous pumps in motion at the combination shaft.

> Lighthouses are to be erected on the Van. couver and British Columbia coasts and the naval defenses strengthened.

The work on the Bartholdi statue is nearing completion. Extra rivets are being driven where the plates were fastened temporarily, the right hand remains to be added, and finally the metal diadem and torch. The official programme for the dedivent of natural gas a number of additional cation on October 28 includes a grand military and naval review, salutes, speeches at the statue and a banquet in the evening.

Mr. William G. Gibbons, president of the Pusey & Jones Company, boatbuilders and machinists, of Wilmington, Del., died very suddenly on the 6th inst. He was on his way to his office, and when within a block of it was taken sick. He immediately entered a store, and lying down died in less than three minutes. His death is supposed to have been caused by apoplexy or heart disease. contractors in the building trades, whether Pa., and was about 54 years old, He had £560,000 less than the Parliamentary estilocated in that or any other Eastern city, to been living in Wilmington 35 years. In his mates. These works include cutting of the an agreement for mutual support and pro-

tection. One of their propositions is to cut of Gibbons & Hilles, iron manufacturers, down the hours of work, and to pay by the but during the last 30 years he had been with the Pusey & Jones Company and had been its president since 1879. He figured but little in public life, concentrating his energies mainly upon the advancement of his shipbuilding establishment.

A conference of the leading members of association was held in this city on the 8th against John Craig on an action brought to inst. with the object of establishing a central organization which can take concerted action when occasion arises in opposition to strikes. President Byrne, of the plumbers' association, occupied the chair, and addressed the meeting, and stated that the time had come to combine against walking delegates, also in defense of the apprentice system, that young men should not be obstructed in learning the trade. There were represented besides the plumbers, master masons, master painters, ironworkers, builders, marble-workers and manufacturing steam-fitters. A committee was selected to ascertain the workings of the Boston and Baltimore associations and to report.

The annual report of the Cincinnati, Indianapolis, St. Louis and Chicago Line, just issued, states : "A contract has just been concluded with the Illinois Central Railroad for an entrance into Chicago and terminals there for 100 years. By this contract the company obtains the right to manage its own affairs in Chicago, naming its own rates and conducting its own business, and paying therefor a percentage of the gross income of the business to and from Chicago over its line, the contract being especially favorable from the fact that if business is dull the payments will be light, and if good the company can afford to meet them.

The boiler at the Bolton Steel Works, at Canton, Ohio, exploded on Thursday last, wrecking the hammer shop. A fragment of the boiler was hurled 400 feet, penetrating the brick wall of the Diebold Safe Works.

A charter has been obtained for an underground railroad in Philadelphia, to extend 15 miles to Chelton Hills; capital stock, \$2,250,000. The president of the corporation is Wm. A. Ingham, president of the Rock-hill Iron and Coal Company, and G. G. White, secretary of the Phoenixville Iron Company, is treasurer. Among the directors are Frederick Prime, Jr., president of the Allentown Iron Company, and P. Henszey, of the Baldwin Locomotive Works. The road will be double-tracked. For the right to run under the streets the company proposes in no manner to disturb traffic during the construction of the subways, to renew sewers according to the approved plan of separating house from surface drainage, to carry gas and water pipes and electric-light wires in their subways, to provide a motor which shall be free from smoke, gas and cinders, and to carry passengers morning and evening for 5 cents over the whole subway system. It also engages in no manner to obstruct the streets by stations—of which there will be four to the mile in the business part of the city and three in the dwelling sections-or their approaches. The stations will be placed on property bought along the line, and the approaches will be under the sidewalks.

The United States consul at Rheims, France, reports to the State Department that there is no reciprocity in that district in trade with the United States; that while about \$3,500,000 is paid per annum for the products of that part of France the re-Supply Company, nearly completed, burst turn traffic is almost nothing. The consul on Thursday and is a complete wreck. It observes: "If reciprocal trade shall be made was of boiler iron, 250 feet high, with a diameter of 16 feet through the lower 90 mercial world will be soon courting our feet and 8 feet above. Water was being friendship and favors, and we shall no longer pumped into it under a pressure of 85 have difficulty in finding open and ready been reckless borrowing. The savings bank pounds when it suddenly burst some distance markets for our agricultural, mechanical and commercial products in nearly all who built it, was standing near, but escaped countries. It would be well, I think, to without injury. The tower was the idea of apply the reciprocal doctrine to our trade Mr. Stephens, the president of the company, with all nations, and by that means secure M. Clarigny says, that any nation ever bore who has had long experience in various a measure of justice for our commercial up under. Capital is being withdrawn from parts of the world in building water works.

> Report says the War Department is trying to secure an experienced man to take partly discontinued in consequence of the charge of the proposed foundry at the Washington Navy-Yard. They expect to pay him about \$2500 a year and to give him the task of running successfully a heavy ordnance foundry with the outfit of a repair shop.

The British War Department has suspended the making of Palliser shot and shells, after a year's trial of the projectiles. Tenders will be invited for the hardest

A coal-tar combination in Philadelphia affords the latest phase of commercial enterprise. This alleged ring proposes to destroy all surplus production in order to maintain the recent advance to \$3.50 and \$4 per barrel, the price paid by the pool contractors to the city, which owns the gas works, being about 80 cents. The commission appointed to destroy the tar, so far as may be found necessary, is W. R. Fowler, of New York. Roofers are much agitated.

An English exchange says that the contract for the construction of the Manchester ship canal has been let to Messis. Lucas & Mr. Gibbons was born in Chester County, Aird for the round sum of £5,750,000,

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Yours very truly,

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The United Brass Company,
79 Fullon Street, New York, May 7, 1886.
Gentlemen: We take pleasure in informing you that we have been using your
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matter of speed, excellent work and durability. We have had many inquiries regarding
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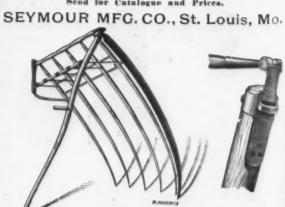


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ts our new "King" Well ade of best Oak Timber, is y finished. and best Well-Bucket ever and we claim the following

generate trade, and we cannot be robowing generated to the amount inside and out, and is varianteed out leads to the amount inside and out, and is varianteed out the amount inside and out, and is varianteed out the amount inside and inside a superstanding the stave at bottom. The ear is securely astened with staples, and it is impossible for noops to come off.

Bucket is so shaped that it lies flat on the water, and dips with much more ease than the ordinary bulge Bucket. The bulge is a disadrantage and causes the Bucket to rock on the water like a boat and prevents it from dipping assily. Price List furnished on application.

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Sample dozen, \$1.00, 'net;
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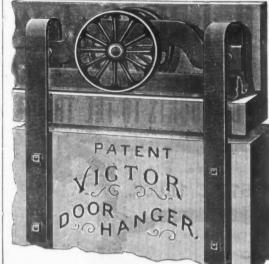
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What is Said of "Morton's Sash Chains."

New York, July 29th, 1886.

New York, July 20th, 1886.

Dear Sir: I have much pleasure in informing you that the Cable Chains used throughout my house, built twelve years aso, have not in a single instance given any trouble, and see no reason why they should not last a lifetime. Yours respectfully.

P. C. BARNUM, 198 Chatham Square, New York.

MR. THOMAS MORTON.

Dear Sir: We take pleasure in testifying to the excellency of your patent Champion and Cable Sash Chains. The best endorsement we can offer is that in no instance coming urder our observation, where it was properly hung, has it failed to give entire satisfaction. We can cheerfully recommend your Sash Chains to all parties that contemplate building, and can say our sailes have increased a hundred fold in the last six months.

Worked a revolution, and will in time supersede all sash cords.

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MOULTON'S Improved Lemon Drill.

Patented June 28th, 1886.
Will extract the LAST DROP of wice from large and small lemons a five seconds.
In the mail on receipt of 15 cents; \$1 per dos. 195 discount from this next \$0 days, cash with order. Agents wanted. Ask your job bers for them. Address patentee and sole manufacturer.

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WITH NATURAL GAS FUEL

and Warrington, the construction of the Anti-Friction. Barton and the whole of the railway devia-

> It is reported that the Governor-General of Cuba has been notified from Madrid that duties are to be collected according to the third column of ruling tariffs only on such goods as are natural products of the United States proceding from any of their ports and imported under the American flag, and by no means on foreign goods, which shall pay according to the fourth column as heretofore, even when imported by American vessels proceeding directly from the United

The Lake Superior Dry Dock Company have been incorporated at Chicago, with a capital of \$250,000. John Fitzgerald, of Milwaukee, is president. The dock will be 200 feet in length, 70 feet wide and 16 feet over the miter sills. Montreal is agitating in favor of a dry dock of the largest capacity for ocean steamers.

The Government officers who spent the last two years in Hudson's Bay and Straits taking observations report that navigation is practical for four to four and a half months of the year. This report bears upon the probability of completing the railway from Winnipeg to Hudson's Bay, which is expected to open up a short outlet to Europe for both the American and Canadian North west. Canadian journals represent that a railroad to Hudson's Bay is an assured fact, that rails for 40 miles have already arrived, and that a syndicate under Hugh Sutherland are amply provided with capital to attain the object.

Discoveries of large deposits of plumbago, or black lead, are reported in the Verdugo hills, Nevada.

Transatlantic freights at this port show some improvement of late, and a very good inquiry is noticed for tonnage to load cotton at Southern ports. Rates for grain have stiffened, but in grain charters Baltimore and Newport News are taking the bulk of the business.

The Illinois State assessment of railroad property this year is \$62,972,101, against \$60,987,317 last year. The increase in mileage is given as 177.

French and German manufacturers alike are forming syndicates to promote the export of the products of industry, to this end dispatching "inspectors" to such markets as afford the best prospects, who are followed up by representatives prepared with catalogues and otherwise qualified to give information, as well as to gather facts calculated to advance the general object.

The report of the commerce of Baltimore for the year ending June 30, 1886, shows a shrinkage both in exports and imports. The total value of exports was \$35,835,311, as against \$45,041,634 in the year ending June 30, 1885. The total value of imports was \$11,736,419, against \$11,753,317 in the year ending June 30, 1885. The largest decrease in exports shown was in wheat, which was valued at only \$3,426,262, against \$12,009, 027 in the previous year. In imports the largest decrease is in coffee, while nearly all kinds of metals show a general increase

Australian commercial bodies seek to influence the United States in favor of a reduction of the import duties on wool by tariff revision.

Chains and pontoons have been unavailing in the effort to remove the stranded steamer Saratoga, of the Troy Line, from the flats near Tivoli.

T. Rowland's Sons shovel works at destroyed by fire 6th inst. Loss \$20,000.

Company. The ferry will be in operation before January 1.

The Independent Petroleum Refiners Bureau has been organized, with headquarters in Cleveland, and an executive committee, of which F. D. Cummer is chairman. The capacity of the stocks of the united concerns is 50,000 barrels.

A coal ring in Milwaukee is charged with conspiracy, and Judge Mallory has the subject under advisement.

A contemporay remarks that with half a dozen factions in New York City contending for the control of \$35,000,000 annually in the management of local affairs the apathy of the great body of taxpayers is amazing.

New South Wales has a deficit of \$10,000,ooo in the revenues of the last fiscal year. A factory in Bayard street, formerly oc

upied by David Block, manufacturer of tinware, caught fire on Thursday morning from the explosion of an oil stove, and the retreat of the workmen being cut off, except allotted percentages of some of the roads is by the roof, a shocking catastrophe was due to the fact that the roads running short barely averted. One woman rolled to the during previous months cut the rates during cornice, clung for a moment, and fell to the pavement, fatally injured. There was but the evening up of balances in cash. This one mode of exit from the building, a practice of evening up balances by cutting second stairway having been boarded up.

Francisco was a decided success, yielding a serious complications."

ham, the building of docks at Manchester goodly margin on the side of profit. The building, which was erected in 1880, cost necessary locks and the swing aqueduct at nearly \$300,000, of which only a small portion now remains unpaid. Goss & Dow's pumping machinery was especially worthy of notice. Baker & Hamilton, manufac'urers and importers of hardware and farm machinery, had a large display. Geo. H. Tay & Co. took the honors among stove manufacturers, and in plumbers' brass goods and steam work Charles B. Parcell received the gold medal.

> The imports at San Francisco for August amounted to \$3,252,637, which is almost \$1,000,000 ahead of last year. The increase from the Hawaiian Islands was over 50 per cent. Japan more than doubled its record for August, 1885, and Australia nearly doubled it for the same month.

The new American steamer Alliance, of the United States and Brazil Mail Line, started out for her destination with probably the largest assorted cargo ever shipped from our Atlantic ports to South America. Of agricultural implements she had 400 cases; hardware, 480 cases; machinery, about 100 cases and packages, also nails, tacks, cutlery and manufactured iron in liberal proportions. Several large lots were consigned to merchants iu Buenos Ayres. Traders of all classes recognize the importance of maintaining regular steam communication with the ports of Brazil and the Argentine Republic under a mail contract.

Alleged fraudulent warehouse receipts given by the managing partner of the packing-house of J. C. Ferguson & Co., of Chicago, drove the firm into suspension, and banks in Chicago and New York suffer to the extent of \$300,000. A Chicago dispatch says the blow is a very serious one to the Board of Trade, because it impugns to a certain extent the value of warehouse receipts, which have long been considered the best of paper upon which to make loans.

A letter from Amsterdam describing the great palace in that city which the King oc-cupies six months in the year says many of the rooms are heated with nickel-plated American base-burner coal stoves. These stoves are the size and shape found in many an American home. They are labeled Crown Jewel, and they look strangely out of place amid their Dutch surroundings. Sending American stoves to Holland is only requiting past favors. In Richmond, Va., may be seen the original Holland stove which heated the old House of Burgesses long ago.

The Chicago Tribune directs attention to the fact that for two weeks or more there has been an almost continuous decrease in the prices of provisions and cereals, until now breadstuffs are at the lowest point in valuation known for a long time past, hardly equal to the cost of production, and this although the cost of farm products has been much lessened by the introduction of farm machinery.

The proposed removal of the Indian warehouse from New York to some Western city will be considered at a meeting of parties interested on some day to be fixed by the Indian Commissioner.

A proposition to enlarge the State canals by employing convict labor on work is spoken of as "new, ingenious and worth considering," but will hardly influence the views of railroad companies.

The need of important modifications in the laws of Mexico calculated to afford security to citizens of the United States who go there was the subject of remark by Secretary Bayard while in Saratoga. American capital tends strongly in that direction, and reacts favorably upon the United States through the various channels of business. Mr. Bayard is reported as saying: " All Cheltenham, Montgomery County, Pa., were that we ask is that American citizens and American enterprise and American industries may be protected, and that they may Three iron ferry-boats are being built at know that they are secure in the post Newburg for the New York and South of any property they may acquire. This Brooklyn Steam Ferry and Transportation question of protection is of the most vital importance, and until Mexico changes its laws and guarantees protection the better class of Americans will stay away from the

> Automatic machinery for reeling silk is being prepared in Washington City, under the direction of the Commissioner of Agriculture, and, if successful, there is reason to believe that silk culture can be established in this country with profit. The United States last year imported raw silk, duty free, to the value of nearly \$20,000,000. If the cocoons which entered into this silk had been produced in this country it would have added \$15,000,000 to the income of our farming class, and it would have required nearly 12,000 persons to operate the machinery necessary to convert them into raw

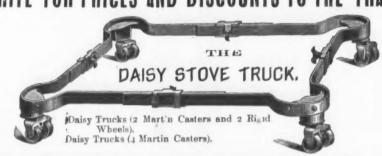
Of 149,000 tons of dead freight shipped eastward from Chicago in September the three Vanderbilt lines carried nearly 56 per cent., and the Michigan Central 27 1/2 per cent. A Chicago telegram says: wide difference between the actual and September in order to catch up and avoid rates has been steadily growing, and unless The Mechanics' Fair just closed in San speedily stopped is likely to cause some

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Prospect of a New Coking Coal in Tennessee.

Some time since I noticed in the columns of The Iron Age a great purchase of stock in a coal-land company in East Tennessee; still later a purchase has been made by the same parties of stock in various companies, so that to them is given the ownership and control of a large area of the best and richest coal lands in the South. In my former article it was stated that Gen. Samuel Thomas, president of the East Tennessee, Virginia and Georgia Railroad, and associates, had purchased the one-half interest of Chas. A. Bulkly in the Coal Creek Mining and Mfg. Company, leaving one fourth in the hands of the Wiley estate and one-fourth the hands of the Wiley estate and one-fourth in possession of various parties. The Coal Creek Mining and Mfg. Company also owned a control in the Waldin's Ridge Railroad and the Oakdale Coal and Transportation Company. The Wiley estate, in addition to their owning one fourth in the Coal Creek Mining and Mfg. Company, also owned a control of the Poplar Creek Coal and Iron Company, an equal interest in the Harkins part of coal land (7500 acres), and a three fourths interest in the Wheeler Iron and Coal Company. Lately the Coal Creek Mining and Mfg. Company, or rather General Thomas and associates, have through Mr. E. R. Chapman, of New York City, purchased the entire interests of the Wiley estate, thus obtaining more than a control of about 95,000 acres of coal land. This great area of coal land is in the heart of the Upper Measure Field, and in the major part of its Measure Field, and in the major part of its area has seams of coal over 3 feet thick. In fact, it places in the hands of this great syndicate all of the Upper Measure Field but about 25,000 acres. The question nat-urally arises, Is this good or bad to the in terests and development of the East Ten-nessee coal field * nessee coal field !

A very large part of this area has been owned by parties who did not have the bold-ness, if they had the means, to make such improvements as would develop their proerty to an extent commensurate with the demands of the times, nor to conduct such experiments as would show the value of their varied seams of coal and increase its uses and consumption. Notably was this the case as to the matter of coke. With 3000 feet of coal measures above the waters of Coal Creek, from the time of the commencement of mining in 1868 to a few months past the owners of this property have only worked one seam of coal, and it nave only worked one seam of coal, and it nearly the lowest, and have barely proven the existence of the others by the scantiest test drifts. And with all these mine seams of workable coal the owners have not demor workable coal the owners have not demonstrated whether or not there is in that vast mass of measures any coal which will make a first-class coke. The new owners propose to and will test this thoroughly. The new president of the company is E. J. Sanford, one of the most successful and energetic business mean of Knownille Transfer. ness men of Knoxville, Tenn., and also one of the directors of the East Tennessee, Virginia and Georgia Railroad. It is his plan to have new seams opened, and 20 cars each of such coals as look favorably sent to Richmond to be made into coke under the super-This Damper requires but one hole in PIPE, and is, we think, the SIMPLEST taken the very careful and intelligent superintendent of the Roane Iron Company's works at that place. It is plain that at least some new ideas of those coals will be ascertained, and if a coke is obtained which will carry a large burden in tall stocks. carry a large burden in tall stacks a new era will be marked in the progress and history of Southern iron-making, and long-talked of, but not realized, industries spring up around Cove Creek and Knoxville. The up around Cove Creek and Knoxville. The owners of the Cranberry Mines only wait the possibility of obtaining a first-class coke to erect one or more stacks at Johnson City, and the counties of Monroe, Blount, Cocke, Greene and Washington all contain enormous deposits of limonites, accessible and easily to be drawn to Knoxville by branch easily to be drawn to Knoxville by branch roads already built or easily, to be con-

> What are the possibilities of ever a coke being made? It is a simple fact that no one can tell what it is possible to obtain from the seams of coal above seam H—that marked at Coal Creek—for the character of the coals is unknown. Though annually getting a royalty which from \$10,000 per year in 1870 has steadily risen to \$50,000, and so been for some time past, the late owners of the property have never had made either a scientific or practical survey and examination of their coal seams; hence, with an unknown field for exploration, it is discovery of a first-class furnace field in this region. It is now reached by two railthis region. roads—one, the Walden's Ridge Railroad, connects with the Cincinnati Southern at Emory Gap, and goes thence on to the Pop-lar Creek coal field. It will be extended to Clinton, on the Knoxville and Ohio Rail-road. The other road is the Knoxville and Ohio, owned and operated by the same owners as the E. T., Va. and G. R. R. It taps the Upper Measure Field at Coal Creek, and has branches running far up in the measures; also taps it at Careyville, and runs along its border for 8 miles. Hence, f good coking coal is obtained the facilities for transporting it on the one system of roads to other parts of East Tennessee, to Georgia and Alabama are of the best character. It is to be hoped that these experi-ments will furnish the much-needed wants of the iron-manufacturing interests of the South.
>
> H. E. C.

Nitro glycerine and dynamite do not, when exploded, exert such a force as is popularly believed. To speak precisely, the power developed by the explosion of a ton of dyna-

side, and, if it were possible to concentrate the whole force of a ton of blasting gelatine at the moment of explosion on such a mass, the only effect would be to lift it to the hight of a foot. These figures are said to have been derived from careful experi

Foreign Merchandise Imported in Interior Points Direct.

The following statements, prepared by the Special Agents' Division of the Treasury Department give the first detailed and accurate comparative figures as to the opera-tions of the Immediate Transportation act for the last fiscal year. The first statement shows the quantity, value and estimated duties thereon of unappraised merchandise transported from ports of first arrival to ports of destination

1883	26, 283, 922 27, 896, 567 25, 860, 893 29, 255, 104	12,225,630 12,323,879 11,754,109 14,403,996
The merchandise warded from the in		
Port of importation. New York. Boston. Baltimore. Chicago. Detroit.	375,696 52,462 18,264 19	nvoice value. \$18,541,171 469,506 477,214 512 52,296

The merchandise above referred to. shipped from these 10 ports of first arrival, was distributed among the following 36 ports

Port of destina	ation.	Invoice value.
Chicago		\$9,133,609
Philadelphia		3,428,804
San Francisco		2,868,342
St. Louis		2,588,478
Cincinnati		1,892,010
Boston		1,728,826
New York		1,649,966

Quantities aggregating less than \$1,000,-000 went to Atlanta, Baltimore, Buffalo, Bath, oo went to Atlanta, Baltimore, Buffalo, Bath, Cleveland, Denver, Detroit, Georgetown, D. C., Galveston, Hartford, Indianapolis, Kansas City, Louisville, Memphis, Milwaukee, New Haven, New Orleans, Pittsburgh, Portland, Me., Portland, Ore., Providence, Port Huron, Richmond, Rochester, Savannah, St. Joseph, St. Paul, Toledo and Wilmington, Del. The increase was most extensive in reimported American which are here. tensive in reimported American whiskey, but was also large in silks and dry goods of various kinds, tin plate and numerous other articles.

The Betls of St. Michael's, Charleston, S. C.

The church of St. Michael's, says the Washington Post, was looked upon with veneration by the inhabitants of South Carolina as a memento of old colonial days. It was built at the commencement of the eighteenth century after the designs of a London architect, a pupil of Sir Christopher Wren, of St. Paul's Cathedral fame. Sir Christopher himself suggested many of the features, and the design bears a general resemblance to that of St. Martin-in-the-Fields, facing Trafalgar square, in London. The spire was noted as being one of the finest specimens of architecture in America. The bells of St. Michael's have a curious history. They were originally manufactured in England, and were a gift to the colony. the British, during the Revolutionary War, captured the city they took the bells, and on their evacuation they packed them up and sent them to England. After the treaty of peace had been consummated negotiations were opened in London for the return of the bells by the first American minister to Great Britain. He succeeded, and the bells were sent to Charleston, and upon their arrival were received with triumphant ovations and escorted by a large procession to the church, in the belfry of which they were replaced. During the late civil war the citizens of Charleston were desirous of protecting the bells from danger, and, as the steeple of St. Michael's was made the target for the canwith an unknown field for exploration, it is both possible and probable that the best results may be obtained from the experiments to be tried. One thing is certain—that no care, time nor expense will be spared to make the tests thorough and perfect. It is hardly possible to estimate the valuable results which will accrue from the discovery of a first-class furnace field in shed was then set on fire. At the conclusion of the war the pieces of the bells were carefully gathered together, boxed and shipped to the commercial house of Frazier, Trenslate. holm & Co., of Liverpool, together with extracts from the records of St. Michael's showing where the bell were cast and the propor tions of the metals forming their co parts. Upon inquiry it was found that there was still in existence in England the firm of bell-founders, unchanged in name, and consisting of the descendants of the proprietors at the time the bells were made. The records of this firm contained descriptions of the bells, and the proportions there given were found to correspond with those furnished from Charleston. The bells were made anew, therefore, of the same metal, and for the fifth time were carried across the Atlantic, and arrived safely at Charleston. The re-turn was made the occasion of great rejoicing in the city.

A writer in the Revue Scientifique affirms that, from a comparison of animal and steam power, the former is the cheaper power in France, whatever may be the case in other countries. In the conversion of chemical to mechanical energy 90 per cent. is lost in the machine, against 68 in the animal. M. Sansom, the writer above referred to, finds developed by the explosion of a ton of dynamite is equal to 45,675 foot-tons. One ton of nitro-glycerine similarly exploded will exert a power of 64,452 foot-tons; and I ton of blasting gelatine similarly exploded, 71,050 foot-tons. These figures, although a large, are not enormous, and need not excite targe, are not enormous, and need not excite targe, are not enormous, and need not excite to not blasting. The special Attachments, Spinning Lathes, Slitting Machines and Rivet Machines.

developed by the explosion of a ton of dynamite is equal to 45,675 foot-tons. One ton of intro-glycerine similarly exploded will sansom, the writer above referred to, finds the machine, against 58 in the animal. M. Sansom, the writer above referred to, finds the tuniber of last year, while the number of what is generally believed, is often materially exceeded by the horse. The cost of trace ally exceeded by the horse. The cost of trace that has been the largest on record. A total ally exceeded by the horse cost only 47 francs, while the sames work done by the horse cost only 47 francs and he believes last year.

that for moderate powers the conversion of chemical into mechanical energy is more conomically effected through animals than through steam engines.

NEW PUBLICATIONS.

AMERICAN NEWSPAPER ANNUAL. Size 6½ x 10 inches, 1010 pages. Published by N. W. Ayer & Son. Price, \$3.

N. W. Ayer & Son's "American Newspaper Annual" for 1886 has just appeared, and, as usual, furnishes a vast amount of highly interesting information. It contains a carefully-prepared list of all newspapers and periodicals in the United States and Canada, arranged by States in geographical sections, and by towns in alphabetical order, giving the name of the papers, the issue, general characteristics, year of establishment, size, circulation and advertising rates for 10 lines one month; a list ing rates for 10 lines one month; a list of all newspapers inserting advertisements, arranged in States by counties, with the distinctive features and circulation of each paper; also complete lists of all the religious or agricultural periodicals, of medical, commercial, scientific, educational or any other of the class publications, as well as all publications with the control of the class publications, as well as all publications. all publications printed in foreign languages. It contains, besides, a large amount of general and statistical information of practical value to almost every business man, and is in its line as deserving a place on desk or in library as Webster's Dictionary or a

One of its chief features is a carefully prepared description of every county in the United States, setting forth its location, area, adjoining navigable streams, the character, acter of its surface, the nature of its soil, its leading crops and manufactures, its county seat and population. A similar, but more elaborate, descriptive heading is appended to each State, Territory and Canadian Province. These headings are subject to constant and careful revision. The growth and development of the various sections are noted and embodied in them from year to year, thus forming a valuable compendium of the physical features and the agricultural and manufacturing resources of the country.
Another valuable feature has recently been added to these headings. They now show from the United States census of 1880 the number of manufacturing establishments of all kinds at that time, the amount of capital invested in them, the number of hands employed, and the value of annual products. employed, and the value of annual products. The State headings show, in addition to the summary of the foregoing, the amount paid in wages, and the value of the raw material used. It gives the population of every State, Territory, county and county seat, of all the large cities and towns, and of all the territory in which a programming the county seats. almost every place in which a newspaper is published, taken either from the United States census of 1880 or from the State census of 1885 in every instance where such census was taken, or from recent careful estimates. It also gives the political majority of every State, Territory and county, and the number of votes polled by the Greenback and Prohibition parties at the Presidental election of 1884. Among its exhaust. dental election of 1884. Among its exhaust ive and interesting tables are those show-ing the cities, towns and villages of the United States having a population of 5000 and upward, arranged in alphabetical order; how many counties there are in each State in how many of these newspapers are published, in how many towns of each State newspapers exist, and how many of these towns are country seats, and how many newspapers there are altogether in the country at large, or in any of its great sections, or in any State, Territory or Canadian Province, or how many there are of each issue, and a comparative statement of the increase in 1886 over 1885. Absolute perfection in a work of this character is an impossibility, but undoubtedly all that pains-taking effort could do to prevent error has been done in the present edition.

The last London Economist has some interesting tables illustrative of the effect of the fall in the value of silver on trade. The bimetallists maintain that it has been very great, but have never been able to produce in support of their assertions facts not ex-plainable on any other hypothesis. It so happens that while British imports from non of the besiegers, the bells were taken non of the besiegers, the bells were taken down and sent to Columbia for safe-keeping, after 1876, and were very high in 1882-83, When Sheridan's army took Columbia the shed in the yard of the Statehouse, in which other years which have since elapsed. On

Trade with Si	ber-Using Count	7108,
Year. 1355	Imports.	Exports.
1884	61,951	66,075
1883	72,917	66,058
1882	75,990	65, 409
1881	65,089	65,859
1880	65,782	64, 197
1878	. 63,633	51,421

All indications available are that, within reasonable limits, of course, the larger the grate in a locomotive the better, because the rate of combustson per square foot of area is now faster than it should be. Consider-able difficulties naturally stand in the way, and prevent and restrain the locomotive builder, but, after making every allowance for this, it may be held that grates and fire-boxes might in a great many cases be larger than they are now. It is certain that a step must be made in this direction if express trains are to go on increasing in weight and speed. A big fire box is the cheapest possible expedient for augmenting boiler power.

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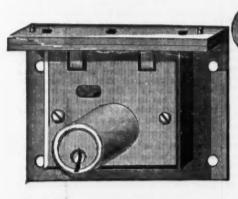
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Directory to the Iron and Steel Works of the United States. Prepared by the American Iron and Steel Association; 8th edition, corrected to July 15, 18.6; 207 pages, 8vo, cloth. \$3

The present volume embodies a most thorough revision of the preceding edition, issued in 1884, with valuable additions. It embraces a complete list of all the blast furnaces, rolling mills, steel works, forges, bloomaries, nail works, wire mills, wire nail works, car works, car-axle works, car-wheel works, car works, car-axie works, car-wheel works, locomotive works and iron-pipe works in the United States, all properly classified and alphabetically arranged. A table of con-tents and a complete index facilitate refer-

Greenwood.-Steel and Iron. Comprising the practice and theory of the several methods pursued in their Manufacture, and of their treatment in the Rolling Mill, the Forge and the Foundry. By W. Greenwood; 97 illustrations, 536 pages, 12mo, cloth. . . \$2

This work satisfactorily presents in convenient form the most important processes employed in the manufacture of iron and steel. The illustrations are in most cases reduced from actual working drawings. The style is simple and clear. Although many of the recent improvements in American prac-tice have not received the thorough attention which they merit, the book treating more particularily of English practice, the author has succeeded in producing a comprehensive manual for the technical student, and an in-telligible and valuable assistant to the practical iron-worker. The chapter headings are

as follows:
Explanation of Terms; Refractory Materials, Crucibles, &c.; The Ores of Iron; Metallurgical Chemistry of Iron; Cast or Pig Iron; The Production of Pig Iron; The Blast Furnace; Hot-Blast Stoves, Hoists, Lifts, &c.; Fuel, Blast, Charges, Yield and Waste Gases of the Blast Furnace; Castings in Iron, Foundry Appliances, &c.; Malleable or Wrought Iron; The Production of Malleable Iron Direct from the Ore; Indirect or Wrought Iron; The Production of Malleable Iron Direct from the Ore; Indirect Methods for the Production of Malleable Iron; The Production of Malleable Iron in Open-Hearth Furnaces; Refining of Pig Iron; Pudddling; Mechanical Puddling and Rotary Puddling Furnaces; Forge and Mill Machinery, Furnaces, Plant, and Operations; Steel and Ingot Iron; The Methods Employed in the Production of Steel Direct from the Iron Ore and by the Carburization of Malleable or Bar Iron, by the Decarburization of Pig Iron in the Finary or in the Puddling Furnace, by the Fusion of Pig Iron with Malleable Iron or with Iron Ores in the Open-Hearth Steel-Melting Furnace; The Besse-Hearth Steel-Melting Furnace; The Bessemer or Pneumatic Process for the Production of Steel from Pig Iron; The Basic Process for the Conversion of Phosphoric Pig Iron into Steel in the Bessemer Converter; The Production of Homogeneous Steel Ingots, Fluid Compression of Steel, Compound Armor Plates, &c.

Bell.—Principles of the Manufac-ture of Iron and Steel, with Some Notes on the Economic Condition of Their Production. By I. Low-thian Bell, F.R.S.; 10 full-page plates, 744 pages, 8vo, cloth.

This extended and comprehensive treatise This extended and comprehensive treatise is an outgrowth, as stated by the author in his introductory chapter, of a request, from the British Iron Trade Association, to prepare a report on the present condition of the manufacture of iron and steel as illustrated by the objects displayed at the French Interby the objects of the obje national Exhibition of 1878, in Paris. This work contains not only the general results then arrived at, but also more extended investigations and experiments which it was considered necessary to pursue to thoroughly discuss the subjects under treatment. The appended headings of the 18 sections into which the volume is divided will give an iron.

which the volume is divided will give an idea of its scope:
Section I. Introductory. Section II. Historical. Section III. Direct Processes Preliminary Treatment of Materials for the Making M alleable Iron. Section IV. for Blast Furnace. Section V. The Blast Furnace. Section VI. On the Use and Theory of the Hot Blast. Section VII. On the Quantity and Quality of the Fuel Required in the Blast Furnace U sing Air of Different Temperatures. Section VIII. On the Solid Products of the Blast Furnace. Section IX. Chemical Changes as They Take Place in the Blast Furnace. Section X. On the Equivalents of Heat Evolved by the Fuel in the Blast Furnace. Section XI. On Hydrogen

and Certain Hydrogen Compounds in the Blast Furnace. Section XII. On the Pro-duction of Malleable Iron from Pig Iron in duction of Malleable Iron from Pig Iron in Low Hearths. Section XIII. On the Refining and Puddling Furnace. Section XIV-On More Recent Methods of Separating the Substances Taken Up by Iron During Its Passage Through the Blast Furnaces. Section XV. Statistical. Section XVI. British Labor Compared with That of the Continent of Europe. Section XVII. On Labor in the United States of America. Section XVIII Europe. Section XVII. On Labor in the United States of America. Section XVIII. Chief Iron-Producing Countries Compared.

Bauerman.—Metallurgy of Iron. By
H. Bauerman; 5th edition, revised
and enlarged, 58 illustrations, 515
pages, 12mo, cloth
This work treats of the physical properties
of iron ores and the most approved means

of iron ores, and the most approved means of reducing them to the purposes of the man-ufacturer. The methods of assay and analyufacturer. The methods of assay and analyses of iron ores are practically considered, as also their composition and distribution. The subject of blast furnaces, their capacity and production, has also received careful attention. In the present edition the author has added to the chapter on Steel Making, and has explained and illustrated the progress recently made in the process of steel manufacture, both of Siemens and Bessemer, especially the latter, by the adoption of lime as a dephosphorizing agent. The book also conpecially the latter, by the adoption of lime as a dephosphorizing agent. The book also contains a chapter on the mechanical properties and tests of Malleable Iron and Steel. The author has succeeded in his avowed attempt to supply much practical and reliable information for ironworkers and others, in condensed form. mation for is densed form.

Thurston - Materials of Engineering. By Robert H. Thurston, C. E., Professor of Engineering, Stevens Institute of Technology.

Part II, Iron and Steel; 143 illus trations, 680 pages, 8vo, cloth 1888

In this, the second volume of Professor Thurston's important work on the materials of engineering construction, the author has included a large amount of practical informa-tion not heretofore available without consulting many different authorities. The ores of iron, their classification, analysis and reduction have received thorough treatment. The construction and management of blast fur-naces and the different operations connected therewith are comprehensively detailed. The subject matter comprehends all the practical operations employed in the manufacture of iron and steel, so simply expressed as to be readily understood by those of limited education. There are several chapters upon the strength, elasticity and resistance of the metals treated, under the effects of time, temperature and repeated strain, with the necessary formulæ and diagrams. The work is valu-able not only as a text-book for the student and engineer, but equally so as a work of reference for the manufacturer and mechanic. Considerable space is given to the most approved methods of manufacturing malleable iron, and the tests of iron and steel are carefully considered and illustrated by recent examples.

Gruner.—The Manufacture of Steel.
By M. L. Gruner, 9 plates, 196 pages, 8vo, cloth; In this translation from the French, the author critically considers the nature of steel, the methods of fining pig iron, and describes the theory and manufacture of steel by comentation and the Bessemer process in all the countries of Europe There is also an appendix by the translator, Lenox Smith, on the Bessemer process in the United States.

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Kunhardt,—The Principles of Ore Dressing in Europe. By Whea-ton B. Kunhardt M. E.

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Wylie.-Iron Founding. By Claude Wylie, with diagrams; 164 pages. 8vo., cloth. London,

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Ricketts.-Notes on Assaying and Assay Schemes. By P. De Peyster Ricketts, Ph.D., Instructor in Assaying in the School of Mines, Columbia College, New York; 6th edition, revised and enlarged, illustrated, 210 pages, 8vo, cloth;

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Troilius.—Notes on the Chemistry of Iron. By Magnus Troilius, E. M. 9 illustrations, 97 pages, 8v

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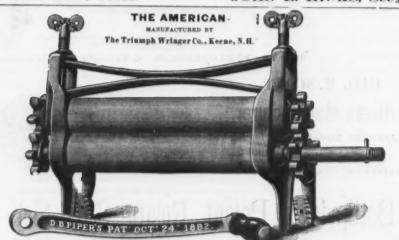
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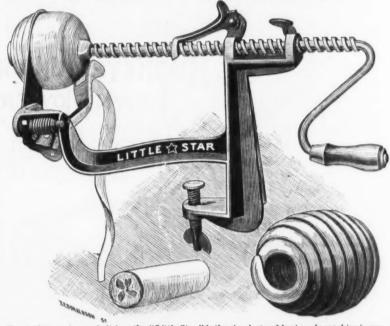
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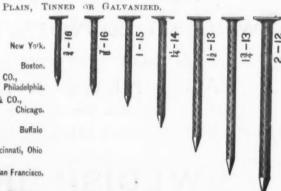
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October 14, 1886.	1.1
PHILADELPHIA.	Sad Irons.—4 to 10 b
Lioyd & Supplee Hardwars Co. Terms, 30 days. For 60 or 90 days, interest added at 8 per cent. per annum.	Stone
8 per cent. per annum. Anvils. Peter Wright's. * * *	Washita Slips 1
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A xes. Hunt's Kentucky and Yankee, \$\psi\$ dos. net\$7.00 William Mann, \$\psi\$ dos. net\$6.50 \$\@ 7.00 Favorite \$\psi\$ dos. net6.6.00 Reveled Axes	Flat Head Brassdis 75 \$ 7 Round Head Brass
Pouble Bit Axes. net \$15.00 @ 13.00 pouble Bit Axes. net	Spoons
Augers and Auger Bits.—New List January 3 Snell's Augers and Hits. Snell's Augers and Hits. New Haven Co-per Company dis. 6):2:10 6 Benjamin Pierce Auger Bits. (dis. 40 5 Jennings' Auger Bits, new Hist Jan. 1, 1834. dis. 25 Cook s Auger Bits and Augers dis 15 6 20 Watrous' Ship Augers. (dis. 15 6 20 5 Sonnel's Ship Augers., Hist \$48 760 cdis40 21 5 Stearns Pat. Hot. Augers, Hist \$48 760 cdis40 21 5 Stearns Pat. Hot. Augers, Hist \$48 760 cdis40 20 5	Species
Benjamin Pierce Auger Bits	Gem No. 3 small Japanned. \$2.00 (dis 50&10 \$ Gem No. 2 medium Japanned. 2.75) Coii No. 10 # gross net. \$5.50@6.00
Snell's Ship Augers	Other Standard Springs. dis 50&10@60 % Warner Door Springs, w goz. \$2.50. dis 40&10 @ 50 % Standard Spring Hinges—
Light and Commondis. 50 %	Single No. 0. \$\P\$ dos. net. \$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\\$\
Bell** Bevin Bros. Mfz. Co. Light Hand Bells dis.75@75&10 f Light Hand Bells dis.75@10@75&10&5 Swiss Pattern Hand Bells dis.76@10@75&10&5 Gissels Gissels dis.76@10@10@10@10@10@10 Gissels Gissels dis.76@10@10@10@10@10@10	Stave Polish Gem # gross, \$4.50, dis 10 5 Dixon 6.00, dis 10 5 Fire Fly \$3.00 gross, net
Conneil's Door Bells	Tacks
Upright, without AugersList, \$5.50 \\ Angular. without AugersList, 6.75 \\ Angular. without AugersList, 6.75 \\ Belts.—Eastern Carriage Bolts, new list, June 10,	Traps. Genuine Oneida—Newbousedis 35@40 %
1884	Traps. dis 35@40 X Im. Oneida—Newbouse dis 16@40 X Im. Oneida—Newbouse lst. First qual.dis 60&10&10 X Vises.—Solid Box. Trenton new list. dis 50&10@60 S W renches.—Agricultural. dis 80&10@80&10&5 Coes' Genuine dis 60&10&3 Coes' Mechanics dis 60&10&3 Coes' Mechanics, Mall. Bar dis 80&10 S Wire.
0 0 1	Coes' Mechanics' dis 60&10&3 5 Coes' Mechanics,' Mall. Bar dis 80&10 5 Wire.
Braces	Bright or Annealed, No. 0 to 18
Amidon improved	Painted Dark Wites
Gutts. dis 60 s Cast Fast Joint, Narrow. dis 60 s Cast Fast Joint, Broad dis 60&10 s Cast Loose Joint, Narrow. dis 60&10 s Cast Loose Joint, Broad dis 60&10 s Cast Loose Joint, Broad dis 60 s Cast Acorn, Japanned 70&10@75 s Cast Acorn, Japanned 100 dis 65&5 s Wrought Loose Joint dis 65&5 s Wrought Narrow Fast dis 65 s	Painted Barb Wire Gaivanized. Nos. 7 to 18. Market List, dis
Cast Acorn. Loose Pin	Peerless No. 3%. 27.00 © Universal, No. 216. 27.00 © Universal, No. 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Wrought Loose Pin	Universal, No. 134 31.50 Universal, No. 1 54.00 E Calversal, For Set Tubs. A 244 954.00 E
Blind Butts-	Universal, for Set Tubs, E 114 15.00 \ 5 15.00 \ 5 1
Parker dis. 75&2 Clark dis. 80 80 80 80 80 80 80 80	Excelsior, for Stationary Tubs, No. E. 10-inch 36.00
Casters.—Bed (new list July 8, 1886 Plate dis 50 & 10@60 t	Excelsior, with Folding Bench, No. B. 11-inch 49.50
Chains, —German Halter and Coil, list June, 188. dis. 55 @ 6 Galvanized rump	PITTSBURGH.
Galvanized Pump dis. 56 & 6 dis. 6 7 dis. 6 dis. 7 d	Merchant Iron. TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 % cent. for each if remitted within 10 days from date of invoice.
Butcher's	invoice. For Auctuations and discounts on cond
Coffee Mills.—Box and Side (new list Jan. 1, 1880	For fluctuations and discounts on card rates see weekly Pittsburgh Trade Report. The following are card rates.
Cutlery.—Walden Pocket	## ## ## ## ## ## ## ## ## ## ## ## ##
facturers' prices net. Deor Hangers, - Croak Barn Door HangersNo. \$12.00; No. 5, \$14.00; No. 6, \$18.00 dis. 50&10@50&15 American Parlor Door Hanger \$6.00; dis 20&10	1 to 1%2.0¢ 44 to 52.4¢ 56 % and % by % to % 2.4¢
American Parlor Door Hanger\$6.00; dis 20&10 Drawing Knives.	1 to 176 2.06 434 to 5 3.66 46 2.86 2 to 286 2.26 44 to 76 2.16 5-10 2.86 24 to 3.06 44 3.06 45 to 9-10 2.26 46 3.06 36 to 4 3.06 45 to 7-10 2.26 46 3.06 50 50 50 50 50 50 50 50 50 50 50 50 50
Drawing Knives. Hart Mfg. Co. s	\$ \$6 to 136
Nicholson	% to 14 inch
Crown and Arrow Obs.10210210270 Fluting Machines. Eagle 34g in. roll each, \$3.15 dis 35 Eagle 34g in. roll each, 2.85 dis 35 Crown 44g in. roll each, 3.50 dis 35 Crown 6 in. roll each, 4.60 dis 35 Crown 8 in. roll each, 6.50 dis 25 Geneva Fluter dis 25 Favorite com. Fluter and Sad Iron. # dos. \$10.50 nc	# Horse Shoe. % to 114 by 5-16 to 34 inch
Crown—41s In. roll esob, 3.50 Crown—6 In. roll each, 4.60 Crown—8 In. roll each, 6.50	76 inch, Nos. 13 & 14 3.2¢ 84 inch, Nos. 11 & 12 3.3¢ 84 inch, Nos. 11 & 12 3.3¢ 84 inch, Nos. 11 & 12 3.3¢ 84 inch, Nos. 11 & 12 3.6¢
Fry Pans.	120 to 321 by 4 & 5-18. 2.24 46 & 46 hv 1/2 & 10
Burnished	16 19n by 3q & 0-10. 2.5s 15q to 6 by 3q to 3-16. 2.5s 3q & 11-16 by 3q to 3-16. 2.5s 3q & 11-16 by 3q to 3-16. 3.2s 1 to 13q by 3q to 3-16. 2.5s 3q x 11-16 by Nos. 11.12.3.3s 3s x 6.1s 3s x
Hammers. Yerkes & Plumb's. new list	114 to 6 by 14 to 3-1b2.5e 14 to 11-16 by 14 to 3-16. 3.2e 14 to 13-16 by 14 to 3-16. 3.3e 15 to 14-16 by 14 to 3-16. 3.3e 15 to 14-16 by 1
Handles. Disston Loop Handles Cross-Cut20¢ pair no Boynton Loop Handles Cross-Cut20¢ pair no	14 to 4, Nos. 13, 14, 15, 28 14, Nos. 19 and 20
Hatchets. Yerkes & Plumb, new list	1
Hatchets. Yerkes & Plumb. new list	14 to 2, No. 223.3¢ 11-16, Nos. 16, 17 & 18.3.8¢ 11-16, 1 & 134, Nos. 13, 11-16, Nos. 19 and 20, 3.9¢ 11-16, Nos. 21
Wadsworth	3 15-16, 1 & 156, Nos. 16, 17 & 18. 1. 3.1¢ 16, Nos. 13, 14 and 15. 3.9¢ 16. 10, 1 & 156, Nos. 19 & 16. Nos. 19 and 19. 4. 10
Hinges. Strap and T	\$ 15-16, 1 & 114, No. 21 3.3¢ 14, No. 22 4.3¢ 15-16, 1 & 114, No. 22 3.4¢ 14, No. 22 4.3¢ 14, No. 23 4.4¢ 14, No. 23 4.4¢
Ausabie	56 Nos. 16, 17 and 18, 3.5¢ 9-16, Nos. 15, 14 & 16, 4.1¢ 16, Nos. 16, 17 & 18, 4.2¢ 16, Nos. 19, 17 & 18, 4.2¢ 16, Nos. 19 and 20, 3.4¢ 9-16, Nos. 19 and 20, 4.3¢ 9-16, Nos. 19 and 20, 4.3¢
Clinton	5 6 No. 22 3.6e 9-16, No. 23 4.6e 4.6e 4.6e 4.6e 4.6e 4.6e 4.6e 4.6e
Locks and Ricoss dis 45&2	13-16, No. 21 3.7¢ 16 inch, Nos. 16, 17, 18.4 4¢ 13-16, No. 32 3.7¢ 16 inch, Nos. 19 & 20 3.6¢ 13-16, No. 32 3.8¢ 16 inch, No. 21 4.6c 14. No. 13, 14 and 15, 3.5¢ 14 inch, No. 21 4.7¢
Parker's Cahinet.	h, Nos. 16, 17 and 18. 3.66 1 inch, No. 23 4.96 The prices under Hoop do not apply to Cotton Ties. Lioe B extra will be charged for each gauge there than the lightest indicated.
t and a second	1-10# & axtra will be charged for cutting Hoose to
Buckeys	114 to 2 in out to leave
Guarda 404 extra. Laws Mowers.—Pennsylvania Philadelphia Excelsior Continental Quaker City Laws and Garden Pumps. Holland Fatent Hist, \$6.00, dis 10	Less than - b, F set of 6 hoops 3.1¢ Less than - b, F set of 6 hoops 3.2¢ Extras for cutting to length all preceding Iron, including Tire
Lawn and Garden Pumps. Holland Patent	Tank from. L10 No. 9 & heavier, 2.8¢; Plow Slabs, 3.0¢ Plow Wings, 3.3¢
Long and Short Cutternew list, 60&10	Khael Iron.
Pennavivania Pattern. die 60& 10 Noinassea Galtea. Enterprise Mfr. Co.'s Measuring Fauceta.dis. 20&10 Stebbling Gates. dis. 70&10 Lincoin's Gates. dis. 60%&20 Langers, Frey & Clark's Petroleum. dis. 40&10	Nos. 18 to 21 3.8# 4.8# 6.3# 6.3#
Brass Liquor Cocks new list Jan. 1, 1880, dis. 55&10 Cork Lined Cocks	No. 27 4.20 3.70 7.20 8.00 28 4.30 3.70 7.20 6.10
	not less than 2.10\$ extra. Wood's Putent Planished Sheet. Ist quality (A)
Hale's	American Galvanised Sheets. (Soho C. H. B.) Brand. Patent Leveled:
Parers, topic and Peach. Ideal Apple Parers	Sobo C. H. B.) Brand. Patent Leveled: Nos. 14 to 20
Parers. Sple and Peach. Ideal Apple Parers. per dos \$5. Waverly Apple Parers. per dos \$6. Goodell White Mountain Apple Parers per dos \$4.5 Goodell Lightning Apple Parers. per dos \$4.5 Monarch Peach Parers. per doz \$5.00 dis. Planes.—Sandusky Fool Co. dis. 25.2 Johnts. dis	Coal Screen tron. 1% by % by 5-162.5¢ 1 by % by 5-163.0¢
Ogonte	186 by % by 5-18.
Plane Irons.—Ohio Tool Co	F Rest.
Stanley's Adjustable dis 70&10 Stanley's Non-Adjustable dis 70&10 Picks.—New its:	12
Razor Strops. Lamont Combination. Lamont Combination. Lamont Combination. Lamont Combination. Lamont Combination. Lamont Combination. W dos. \$2.00, 70&10&10	# # Raid. 8 b to the yard 2.4# 120 b to the yard 2.3# 12 " " 2.3# 25" " " 2.3# 25" 16 " " 2.3# 25" " " 2.3# 25" Splice Joints for 12.1# and 20 b Rail. 30# each; 28 and 30 b Rail. 40# each; 40 b.50# each; 28 and 30 b Rail. 40# 25# 25# 25# 25# 25# 25# 25# 25# 25# 25
Stanley Hoxwood	# 2% by 5-16
Lamonf Combination	11/4 to 2 by 1/4 to 46 inch. 2.5 s 11/4 by 3/4 and 7-16 inch 2.7 s 11/4 by 3/4 - 7-16 and 3/4 inch. 3.0 s
Lbs	Junista Nail Rods, 6.0s; Norway Nail Rods, 7.5s. Guard Iron, 5s.5s and 5a.5s.x5s. Guard Iron, 5s.x5s.t5 and 5a.7s.x5s. Guard Iron, 5s.x5s.t5 and 5a.7s.x5s.t6 Dropper Bars
Squares.	Drag Bars
Steel and fron.dis. 60&10 \$; full cases dis. 7v Squares, Stanley	See Pittaburgh Trade Report. Tool Steel.
Clipper No. 10, Bronsed Blade, Boxed and Sharpened	Classification Adopted April 13, 1886, Steel Association of United States. ROUND, SQUARE AND OCTAGON.
Saws.	\$ \$4 to 2base, 8.0¢ 65¢ to 7 3.0¢ 14 & 9-32. 3.0¢ 25¢ to 3ext. 1.0¢ 75¢ to 8 3.5¢ 3-105.0¢ 25¢ to 3ext. 1.0¢ 9-10 to 15 0.5¢ 5-3310.9¢ 25¢ to 5 2.0¢ 7-10 to 16 1.0¢ 16 18.0¢ 25¢ to 6 2.0¢ 5-10 and 11-32 2.0¢ 16 18.0¢ 25¢ to 6 2.0¢ 5-10 and 11-32 2.0¢
Oliver Ames & Sons, new list	113 to 5 2.0¢ 7-16 to \(\frac{1}{2} \). 1.0¢ \(\frac{1}{2} \). 18.0¢ \(\frac{1}{2} \) to 0
dis com coas	2 to 1-15 inches wide x 3 to % inches thickbase, 8.04

	T	HE	IR	0	N	A	C
8 8 9 9 9	ad Irons.—4 to 10 b. \$ b 2.35@2.50¢ Mrs. Potts' Patent. dis 35@24.50¢ Mrs. Potts' Patent. dis 35@24.51¢ Lone. Washita No. 1. \$ b 25¢ Windowstan Oil Store No. 1. \$ b 44,5 Hindostan Axe Stone. \$ b 46,5 Hindostan Axe Stone. \$ b 46,5 Hindostan Silps Crews.—Parker list (new list). Flat Head Iron. \$ dis 80 \$ F 15a Flat Head Iron. \$ dis 80 \$ F 15a Round Head Brass. \$ dis 70 \$ R Round Head Brass. \$ dis 70 \$ R Round Head Brass. \$ dis 70 \$ R Round Head Iron. \$ dis 50 \$ 102 0 \$ 6 Flat Head Iron. \$ dis 50 \$ 102 0 \$ 6 Flat Head Iron. \$ dis 50 \$ 102 0 \$ 6 Flat Head Iron. \$ dis 50 \$ 102 0 \$ 6 Flat Head Iron. \$ dis 50 \$ 102 0 \$ 6 Flat Head Iron. \$ dis 50 \$ 102 0 \$ 6 Flat Head Iron. \$ dis 50 \$ 102 0 \$ 6 Flat Head Iron. \$ dis 50 \$ 102 0 \$ 6 Flat Head Iron. \$ dis 50 \$ 102 0 \$ 6 Flat Head Iron. \$ dis 50 \$ 102 0	8 x 7	3.5¢ 6 x 2.25¢ 4 x 2.25¢ 2.25¢ 4 x 2.25¢	st of Exist. 4. 4. 4. 4. 5. 4. 5. 6. 6. 6. 6. 6. 6. 6. 6. 6	tras. 1.0¢ 1.0¢ 2.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1	54 x 7-10 54 x 34. 55 x 5-16 55 x 3-16 56 x 3-	3
	Galvanized. Nos. 7 to 18. Market List, dis	14 to 3 in. in 314 to 4 incl 414 to 5 incl	ACHINERY ncbase hes inc	ROUND 2, 2.8¢ 5xtra. 0.8¢ 0.5¢	5 AND 5 to 1 5 to 2 5 16 ar	squares. 1-16 inch 1-16 inch 11-32 i 9-32 inch	in in
· · · · · · · · · · · · · · · · · · ·	### PITTSBURGH. **Terms.**—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 went for each if remitted within 10 days from date of invoice. **For fluorisations and discounts on our grates see weekly Pittaburgh Trade Report.** The following are card rates. **Flut Bar.** 114 to 4 by % to 1. 2.1¢ 1 and 134 by % to M. 2.1¢ 14 to 6 by 1% to 1. 2.1¢ 1 and 134 by % to M. 2.2¢ 14 to 6 by 1% to 1. 2.1¢ 1 and 134 by % to M. 2.2¢ 14 to 6 by 1% to 1. 2.1¢ 1 and 134 by % to M. 2.2¢ 14 to 6 by 1% to 1. 2.1¢ 1 and 134 by % to M. 2.2¢ 14 to 6 by 1% to 1. 2.1¢ 1 and 134 by % to M. 2.2¢ 14 to 6 by 1% to 1. 2.2¢ 14 to 16 days and source.** **Rowness and sou	14 in. and 15 in. to 15 15 in. to 15 15 in. to 25 16 in. to 36 17 in. to 31 18 in. to 31 18 in. to 31 18 in. to 31 18 in. to 32 18 in. to 36 18 in. to 37 18 in. to 37 18 in. to 37 18 in. to 38 18 i	wider x 3, 4 in. x 3, 6 in. x 3, 6 in. x 3, 6 in. x 1, 1 in. x 1,	CHINERY 4 to 1 in 4 to 5-16 1 in 16 4 to 5-1	Y FLAT. Thicky to the control of th	ick	ee
******* 00000%**** *** 00		Flange Ste flenge Ste diameter flange Ste inches di Best Boller pounds t Best Boller to 70,000 Best Boller to 70,000 Best Boller	eel Plates, eel Heads, rr Steel, 14 pounds to r Steel, 35 tensile str r Steel, 85 pounds to r Steel, 10 pounds to r Steel Plates	, 100 ince e2, 95 inch	ches to ktra or ches disaktra or inches a trengt to 12 ftrengt to 1 ftre	o each the control of	terbieler ich
# 0	114 to 2 by 15 to 36 inch. 2.56 114 by 36 and 7.16 inch 2.16 114 by 36 and 7.16 inch 2.16 114 by 36 7.16 and 36 inch 3.16 Junista Nail Bods, 6.04; Norway Nail Bods, 7.54. Guard Iron, 15x3x34 and 15x3x34. 2.56 Guard Iron, 15x3x34 and 15x3x34. 3.76 Drag Bars. 2.86 (v) & Landside Iron, 2.76 Dropper Bars. 3.86 Plow Beam Iron, 2.76 Nails. See Pittaburgh Trade Report. Teel Steel. Classification Adopted April 13, 1886, Steel Association of United States. BOUND, BOURDE AND OCTAGON.	Entirel one plate cast-iron being to durable. These wrought heat, cole We fu or galvan	sinks in ghter, s sinks, steel, wi d, or an arnish the nized, as m from	being ill not y cause bese si s desire	par par par ma brea e who inks	erior to ticular, d more ade of k from tever. painted prices consid	1
2	\$6 to \$base, 8.0¢ \$66 to 7 3.0¢ \$4 \$9.32. 2.0¢ \$25 to 3ext. 1.0¢ 75 to 8 3.5¢ \$3.10 5.0¢ \$35 to 4 3.5¢ \$3.10 5.0¢ \$35 to 6 3.0¢ \$7.10 to 56 3.0¢ \$6 3.0¢ \$7.10 to 56 3.0¢ \$6 3.0¢ \$6 3.0¢ \$7.10 to 56 3.0¢ \$6 3	from cas	s than	for	sinks	made	

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x 3. x 2. x 194 to 96 x 36 . x 56 . x 56 . x 5 . x 3 . x 2 to 96 . x 14 . x 14 . x 15 . x 14 . x 15 . x 2 to 96 . x 2 to 96 . x 3 . x 2 to 96 . x 4 . x 16 . x 2 to 96 . x 4 . x 16 . x 2 to 96 . x 4 . x 16 . x 2 to 96 . x 4 . x 16 . x 2 to 96 . x 4 . x 16	2.5¢ 2.5¢ 2.5¢ 1.5¢ 1.0¢ 2.0¢ 2.0¢ 2.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.5¢ 1.5¢	6 x x x x x x x x x x x x x x x x x x x	to 56	1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢ 1.0¢	% x 3/4 % x 3/4 % x 5/4 % x 5/	16 16 16 16 16 16 18 18 19	1.5¢ 2.0¢ 1.0¢ 1.5¢ 1.5¢ 2.0¢ 1.5¢ 2.0¢ 3.0¢ 4.0¢ 8.0¢ 4.0¢ 8.0¢ 15.0¢ 20.0¢ ce of les or	He per size. Best pour catil Aug Axid an Fron Pici el Ska Pik Coa Squ an ar Spin Soli Thr
extra. 1.6 gauge to Diameter. 70 46 inch. 48 inch. 50 inch. 52 to 54 i	c; an	d 1¢a 6. CRUC .base extra extra	dvan	CIRCULA Diame 56 to 62 to 66 to 72 in	RS. ter. 060 incl 064 incl 070 incl och	every	ra. 5¢ ra. 5¢ ra. 7¢ ra. 9¢ ra. 11¢	Sti
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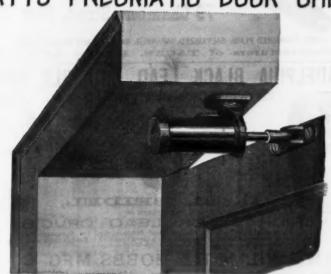
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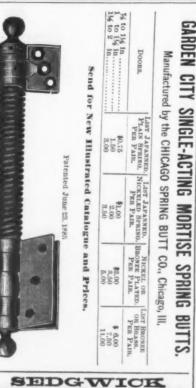


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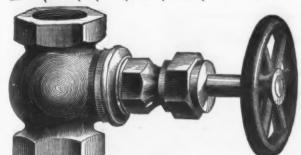
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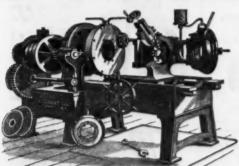
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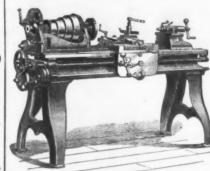


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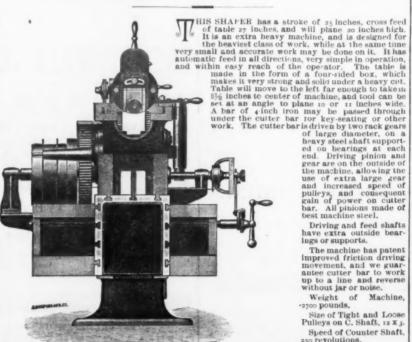
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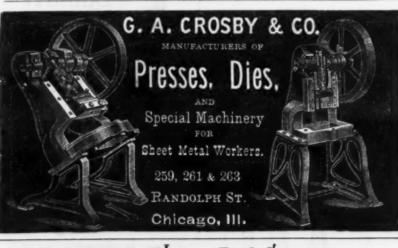


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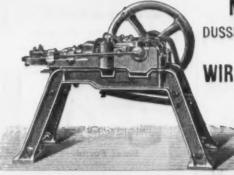




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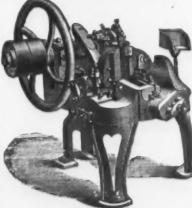
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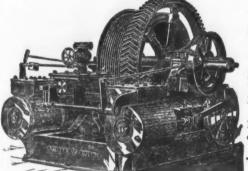


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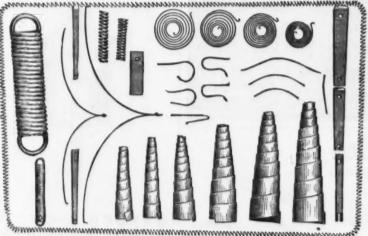
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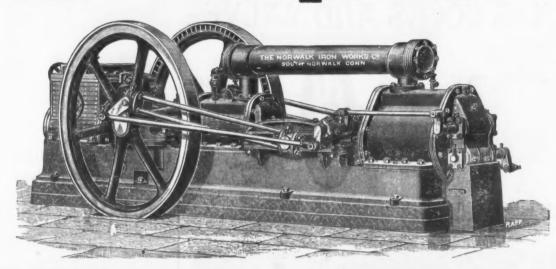


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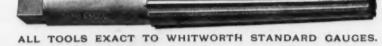
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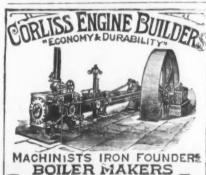
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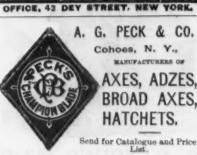
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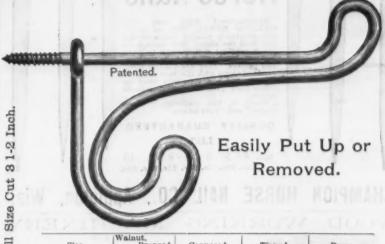


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operating double rac wheel.

the pipe The nipple

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the socket opened by pipe releas screws to to

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